BANGALORE WATER SUPPLY
AND
SEWERAGE BOARD
CAUVERY BHAVAN, KEMPEGOWDA ROAD,
BANGALORE – 560 009

Tender for the Work of Comprehensive Operation & Maintenance (O & M) of CWSS Stage-IV, Phase-II, 550 MLD Water Treatment Plant (WTP) at T.K. Halli for 5 years (Call-3)

Office of the Chief Engineer (Cauvery Headworks)
BANGALORE WATER SUPPLY & SEWERAGE BOARD

8th Floor, Cauvery Bhavan
K.G.Road,
Bangalore -560009.

Telephone – 080-22945263

e-mail –cekoandm@bwssb.gov.in

Website www.kppp.karnataka.gov.in

TENDER REFERENCE :	:	IFT No.: BWSSB/CE(CH)TE/TA-01/79/2025/ /2026-27 Dated: 14/05 /2026	
NAME OF THE WORK	:	Work of Comprehensive Operation & Maintenance (O & M) of CWSS Stage-IV, Phase-II, 550 MLD Water Treatment Plant (WTP) at T.K. Halli for 5 years (Call-3)	
PERIOD OF DOWNLOAD OF TENDER DOCUMENT	:	From: 18/05/2026	To: 16/06/2026
DATE OF PRE_BID MEETING	:	27/05/2026 at 15.00 hrs	
LAST DATE AND TIME FOR RECEIPT OF TENDERS	:	16/06/2026 up to 15:00 hrs	
TIME AND DATE OF OPENING OF TECHNICAL TENDERS	:	17/06/2026 up to 16:00 hrs	
PLACE OF OPENING OF TECHINCAL TENDERS	:	Office of the Chief Engineer (Cauvery Headworks), Bangalore Water supply and Sewerage Board, 8th Floor, Kaveri Bhavan, Kempegowda Road, Bangalore-560 009	
TIME AND DATE OF OPENING OF PRICE TENDERS	:	WILL BE INTIMATE LATER	
PLACE OF OPENING OF PRICE TENDER	:	Office of the Chief Engineer (Cauvery Headworks), Bangalore Water supply and Sewerage Board, 8th Floor, Kaveri Bhavan, Kempegowda Road, Bangalore-560 009	
ADDRESS FOR COMMUNICATION	:	Office of the Chief Engineer (Cauvery Headworks), Bangalore Water supply and Sewerage Board, 8th Floor, Kaveri Bhavan, Kempegowda Road, Bangalore-560 009	

Contents

Section No.	Description	Page
1.	INVITATION FOR TENDER (IFT)	4
2.	INSTRUCTIONS TO TENDERERS (ITT)	9
3.	QUALIFICATION INFORMATION	35
4.	FORM OF TENDER, LETTER OF ACCEPTANCE, NOTICE TO PROCEED WITH THE WORK AND AGREEMENT FORM	39
5.	CONDITIONS OF CONTRACT (CC)	43
6.	CONTRACT DATA	109
7.	SPECIFICATIONS	111
8.	DRAWINGS	131
9.	BILL OF QUANTITIES	132
10.	FORMAT OF BANK GUARANTEE FOR SECURITY DEPOSIT	133

BANGALORE WATER SUPPLY AND SEWERAGE BOARD
Office of Chief Engineer(Cauvery Headworks), BWSSB,
8th Floor, Kaveri Bhavan, Kempegowda Road,
Bangalore-560 009

SECTION 1
INVITATION FOR TENDER

(ONLY THROUGH KPP-PROCUREMENT PORTAL)

IFT No : BWSSB/CE(CH)TE/TA-01/07/2025/79/2026-27 Dated: 14/05 /2026

1. The Chief Engineer (Cauvery Headworks) invites tender from eligible tenderers, for the construction of work detailed in the Table below through e-PROCUREMENT process with two stages tender procedure in line with the Rule28 of the KTPP Act. The details regarding their qualification to take the tender (as detailed in ITT Clause 4) and the price tender shall be uploaded in the website of the e-procurement Portal. Technical details will be opened on the date and time mentioned in IFT clause 5 and evaluated. The price tender of the Tenderer, who is found to be qualified to execute the tendered works, will be opened on the date notified later. The Tenderers are advised to note the minimum qualification criteria specified in Clause 3 of the Instructions to Tenderers(ITT) to qualify for award of the contract.

2. Tender documents may be downloaded through the e-procurement wizard which will link to www.kppp.karnataka.gov.in from 18/05/2026 to 16/06/2026 , on payment of a non-refundable fee indicated in the Table below, using any of these forms of OTC,NEFT, DEBIT CARD and CREDIT CARD through e-portal only. Interested tenderers may obtain further information at the Office of e-procurement. Tenderers will be issued a password and authorized for accessing the tender document in the website with URL: www.kppp.karnataka.gov.in

3. The Bidders can download the e-tender document using their user ID – password, by accessing www.kppp.karnataka.gov.in where electronic tender form is provided. Additional information related to e-tender process can be obtained through the above mentioned website. The electronic tender will be operated as Two stage Tender system by opening the Technical details first and financial portion of the eligible tenderers later.

4. Tenders must furnish Earnest Money Deposit specified for the work in the Table below. Earnest Money Deposit will have to be paid through any one of the forms OTC,NEFT, DEBIT CARD and CREDIT CARD through e-portal only.

Sl. No	Name of Work	Cost of Tender Document including Taxes Rs.	Amount put to Tender Rs. in Lakh (Approx) (Excluding GST)	Bid Security Rs. in Lakh	Period of completion	Eligibility Criteria during last 5 years (2020-21 to 2024-25)	
						Turnover (in all classes of Civil Engineering construction works) for any of the two years Rs. in Lakhs	Performance & Work Qualification (2015-16 to 2024-25)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Work of Comprehensive Operation & Maintenance (O & M) of CWSS Stage-IV, Phase-II, 550 MLD Water Treatment Plant (WTP) at T.K. Halli for 5 years (Call-3)	To be specified by e-procurement cell.	Rs. 2951.85 Lakhs	Rs.30 Lakhs	60 months (Including monsoon period)	Rs.1393.28 lakhs	i)The bidder should have experience in the last ten years, i.e., 2015-16 to 2024-25, as a Prime Contractor / Joint Venture partner in case of JV having operated and maintained One Water Treatment Plant designed based on DAF or any advanced technology with automation facilities for at least 3 continuous years

							in the last Ten Years and also satisfactorily treating the water to prescribed IS 10500:2012 water quality standards of value not less than Rs. 1741.6 Lakhs. ii) The bidder should have experience in the last ten years, i.e., 2015-16 to 2024-25, as a Prime Contractor / Joint Venture partner in case of JV having operated and maintained One or multiple Water Treatment Plants under a single contract/project, with a cumulative of 440 MLD capacity designed based on DAF or any advanced technology with automation facilities for atleast 3 continuous years in the last Ten Years and also satisfactorily treating the water to prescribed IS 10500:2012 water quality standards. OR The bidder should

							have experience in the last ten years, i.e., 2015-16 to 2024-25, as a Prime Contractor having Designed and constructed of minimum 440 MLD capacity Water Treatment Plant designed based on DAF or any advanced technologies having sludge recycling facility, PLC and SCADA within last Ten Years and Operated and Maintained this plant for atlesat one year satisfactorily and producing final finished water quality as per IS 10500:2012 drinking water quality standards. iii) The bidder should have necessary personnel and infrastructure to do the work and should possess qualified and experienced engineers having experience in Water treatment process and operation and maintenance of Water treatment Plant and laboratory chemists experienced in Water analysis in the last five years

All Bidders Shall Quote Item rates excluding GST

5. The last date for uploading of completed tender document is on 16/06/2026 upto 15:00 hrs. The bids will be opened at the office mentioned in para no.12 on 17/06/2026 at 16:00 hrs in the presence of bidders or their authorized representatives. If the bid opening day remains as public holiday, Bids will be opened on the next working day at the original stipulated time

6. EMD can be paid through OTC, NEFT, DEBIT CARD and CREDIT CARD through e-portal only. The value of the Bid Security / EMD is as mentioned in the table above in column no 5.

7. Bidders can access tender documents from the website and upload the required details; those are mentioned in different sections in the bid document in to electronic tender box on the website. Scanned documents those are required to be furnished as per Section 2, 3 & 4 of the bid document shall be submitted through e-portal preferably in PDF format for clear vision.

8. The cost of the tender document once paid will not be refunded.

9. The successful bidder would be required to give performance bank guarantee of 5% of the contract amount plus additional security for unbalanced bid amount from a Nationalized / Scheduled Indian Bank, with jurisdiction at Bangalore as specified in the clause no.29 of ITT, towards guarantee for completion of work within the stipulated period.

10. Applications / requisitions from joint venture Firms are not acceptable.

11. Bangalore Water Supply and Sewerage Board reserve the right to cancel or annul the entire or part of this process of invitation at any time without assigning any reason.

12. For any additional information regarding the above tender, the firms who are interested to quote, may contact office of the undersigned at the office address given below on all working days during office hours 1030hours to 1700 hours.

The Chief Engineer (Cauvery Headworks),
Bangalore Water Supply and Sewerage Board
8thFloor, Cauvery Bhavan D- Block,
Kempe Gowda Road, Bangalore - 560009
Karnataka, India.
Tel Fax: -080-22945263
Telephone: +91-80- 22945263
Or visit Website www.kppp.karnataka.gov.in

13. List of documents to support qualification of bidder is to be uploaded to the e-Portal website www.kppp.karnataka.gov.in

14. Bidders shall submit offers that comply with the requirements of the bid document, including the basic technical design as indicated in the drawing and specifications. Alternatives will not be considered. The attention of the bidders is drawn to clause 23 regarding the rejection of the bids, which are not substantially responsive to the requirement of the bid document.

15. Other details can be read from the tender documents.

Sd/-

Chief Engineer (Cauvery Headworks),
Bangalore Water supply and Sewerage Board
8th Floor, Kaveri Bhavan,
Kempegowda Road,
Bangalore – 560 009.

SECTION 2:
INSTRUCTIONS TO TENDERERS (ITT)

Table of Clauses

		Page No.
A.	General	
	1. Scope of Tender	10
	2. Eligible Tenderers	20
	3. Qualification of the Tenderer	20
1	4. One Tender per Tenderer	22
2	5. Cost of Tendering	23
3	6. Site Visit	23
B.	Tender Documents	
1	7. Content of Tender documents	23
2	8. Clarification of Tender Document	23
	9. Amendment of Tender documents	24
C.	Preparation of Tenders	
	10. Documents comprising the Tender	25
	11. Tender prices	25
	12. Tender validity	26
	13. Earnest money deposit	26
	14. Format and signing of Tender	27
D.	Submission of Tenders	
	15. Up-loading & submission of tenders	27
	16. Deadline for submission of Tenders	28
	117. Late Tenders 28	
	18. Modification and Withdrawal of Tenders	28
E.	Tender opening and evaluation	
1	19. Opening of Technical bid of all Tenders and evaluation to determine qualified Tenderers	29
	20. Opening of Price bid Tenders of qualified Tenders and evaluation	30
	21. Process to be confidential	30
	22. Clarification of Tenders	30
	23. Examination of Tenders and determination of responsiveness	31
	24. Correction of errors	31
	25. Evaluation and comparison of Tenders	32
F.	Award of contract	

26. Award criteria 33
27. Employer’s right to accept any Tender and to reject any or all Tenders 33
28. Notification of award and signing of Agreement 33
29. Security deposit 34
30. Advance payment and Security 34
31 Corrupt or Fraudulent Practices
34.

A. General

1. Scope of Tender

1.1 The Chief Engineer (Cauvery Headworks), (Referred to as Employer in these documents) invites tenders following Two Stage e-procurement procedure, from eligible Tenderers, for the Work of Comprehensive Operation & Maintenance (O & M) of CWSS Stage-IV, Phase-II, 550 MLD Water Treatment Plant (WTP) at T.K. Halli for 5 years (Call-3) (as defined in these documents and referred to as "the work") detailed in the Table given in the Invitation for Tenders (IFT).

1.12. The Operator.

1.121 General Obligations of the Operator

The Operator will be responsible for the daily operation of the Treatment Plant at all locations 24 hours per day to deliver treated water into BWSSB’s storage reservoir at T.K.Halli. The output of the Treatment Works will be varied from time to time, as directed by BWSSB, to suit the availability of raw water and to suit the BWSSB’s requirements of the treated water. The Operator shall optimize the operation of the Treatment Works in the most cost effective manner in terms of the consumption of raw water, power, chemicals, spares and consumables.

The Operator shall be totally responsible for the maintenance of the Treatment Works to ensure the reliability of the deliver operations as well as the longevity of the plant and structure, comprising the Treatment Works, so that these items are handed back to the Employer in good working condition. The Operator shall provide all superintendence, labour materials, consumables required in and for the operation and maintenance of the Treatment Works to treat the raw water, sludge etc. The Operator shall take full responsibility for the adequacy of his operating and maintenance procedures to ensure the safety of all the personnel and of the Treatment Works, irrespective of any approval or consent of the Engineer.

1.122 Scope of Work

The Operator is entirely responsible for the operation and maintenance of the Treatment Works to ensure the output of treated water, in automatic mode, in the required quantity and to the required quality standards in compliance with this Contract. The operator will also treat and dispose of the sludge and wastewater in compliance with this Contract. The operator shall provide all goods, repair services, labour services including management staff, skilled & unskilled labour and supply of the chemicals, tools, replacement parts and all consumables required. The Operator shall utilise the facilities, including spares handed over to him by the Employer at the commencement of the Contract, in accordance with the intentions of design of the Treatment Works, the as-built drawings, the O & M manuals and vendors manuals, the site acceptance test plans and all other documents available. All the works shall be carried out as per the relevant IS codes and as per standard practices and O&M manuals supplied by the Contractor/consultants/vendors of the contract with respect operation and maintenance of treatment plant. The operator is responsible for operation & maintenance of 11 kV power transformer yard at Water Treatment Plant. The operator is entirely responsible for the safety of the equipments and their safe custody. Any theft or missing or pilferage of any equipment and equipment components shall be responsibility of the operator. Other than for the purposes of maintaining the backwash and drainage discharge outfalls from the treatment works to the river, the pipeline to the clear water reservoir and the treated water chlorine residual equipment, the Operator shall confine his operations to the treatment works or to any areas in BWSSB's premises which may be provided by the Employer as agreed by the Engineer as working areas. The operator shall ensure required design flow on daily basis (550 MLD)

The Operator shall provide security staff for safety of plant & machinery, and necessary staff for operation and maintenance of the water treatment plant, including transporting and disposing of solid wastes, debris, garbage etc., collected from centrifuges to approved landfill sites.

The Operator shall supply Diesel fuel, Engine oil, coolant, oil and diesel filters, gaskets, cleaning materials etc., required for Operation and Maintenance of D.G Set. Diesel will be paid at the rate the operator has procured and for the actual quantity.

The Operator shall replace all damaged lighting fixtures, cables, switches etc., as and when necessary to keep the treatment plant lighting in good

working condition. Also, the operator should keep the site premises, landscape & garden in neat & clean condition.

The operator shall maintain the Telephone connections. The rates quoted shall be inclusive of monthly Telephone bills. The rate quoted shall include all these items.

1.123 Performance Security

The Operator shall obtain at his cost a performance security from a Nationalised or Scheduled Bank in India with jurisdiction at Bangalore to an amount of Rs. 5% of the contract amount plus additional security for unbalanced bid amount if any in a form acceptable to the Employer and shall deliver it to the employer within 28 days of the commencement of the Contract. The performance security shall be provided by an entity approved by the Employer. The Employer has the right to verify and confirm the authenticity of the Bank Guarantee at any time and if the Bank Guarantee is found invalid or illegal, the contract will be cancelled with the Operator at any time and the works will be got done at the risk and cost of the Operator by employing another agency by the employer and further, the BWSSB forfeit the EMD, blacklist the operator for any work in BWSSB. The performance security shall be valid until the expiry of the six-month defects liability certificate. Prior to making a claim under the performance security, the Employer shall, in every case, notify the Operator stating the nature of the default for which the claim is to be made.

1.124 Plant Manager/Process Engineer

Unless the Plant Manager/Process Engineer is named in the Contract, the Operator shall, within 14 days of the effective date, submit to the Engineer for consent the name and particulars of the person the Operator wishes to appoint. The Operator shall not replace the Plant Manager/Process Engineer without the prior consent of the Engineer. The Plant Manager/Process Engineer shall give his whole time to directing the operation and maintenance of the treatment works. The Plant Manager/Process Engineer shall receive, on behalf of the Operator, all notices, instructions, approvals, certificates, determinations and other communications under the Contract. Whenever the Plant Manager/Process Engineer is to be absent from the Site on leave for a period of more than three days, a suitable temporary replacement shall be appointed and the Engineer shall be notified accordingly.

1.125 Co-ordination for Operation and Maintenance

The Operator shall be responsible for the co-ordination and proper execution of the operation and maintenance of the treatment works, including co-ordination with BWSSB's personnel responsible for operating the BWSSB Works at T.K.Halli and with BWSSB's appointed operator of the pumping station. The Operator shall afford all reasonable opportunities for carrying out their work to the workmen of BWSSB, workmen of contractors employed by BWSSB and the workmen of any legally constituted authority who may be employed in the execution on or near the treatment works of any work not included in the Contract, which the Employer may require. The Operator shall co-ordinate and submit to the Engineer his information all details from suppliers and approved subcontractors, including details of work to be carried out at the treatment works including deliveries.

1.126 Sub-contractors

The Operator shall not subcontract or assign any part of the Contract except as described in this Clause. The operator may engage sub-contractor for the skilled, unskilled and security manpower under the overall responsibility of the operator.

The Operator shall be entirely responsible for observance by all subcontractors of all the provisions in the contract and the Operator shall be responsible for the acts and defaults of any subcontractors, is agents or employees, as fully as if they where the acts or defaults of the Operator, his agents or employees.

If a subcontractor has under taken a continuing and assignable obligation to the Operator for maintenance services supplied by such subcontractor, and if such obligation extends beyond the expiry of the Contract Period, the Operator shall, upon the expiry of the Contract Period, assign the benefit of such obligation to the Employer for its unexpired duration, at the request and cost of the Employer.

1.127 Quality assurance

The Operator shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The compliance with the quality assurance shall not relieve the Operator of his obligations, duties and responsibilities under the Contract. The details of all procedures and compliance documents shall be submitted to the Engineer for his information. Signed quality assurance statements for such reports shall accompany the Operator's monthly reports to the Engineer. The Engineer shall be entitled to audit any aspect of the system and require any remedial action to be taken.

1.128 Matters affecting the Operation and maintenance of the treatment works

The operator shall be deemed to have taken account of the conditions which may prevail and of facilities available to him, when he takes possession of the treatment works from the Employer, and all risks, contingencies and other circumstances which may affect or influence his contract Price. The Operator shall be deemed to have satisfied himself as to the correctness and sufficiency of his Prices, which shall cover all his obligations under the Contract. The operator shall provide at his own cost any tools, tackles and equipment, replacement parts etc and also undertake necessary repairs of all kinds necessary for the satisfactory operation and maintenance of the treatment works.

1.129 Inception Report

The Operator shall submit to the Engineer within 28 days of the Commencement of the Contract a detailed description of the arrangements and methods which the Operator proposes to adopt for the execution of the Contract showing how he will operate and maintain the treatment works. This inception report shall be in amplification of the Operator's tender proposal and the Operator shall not reduce the scope of the services of offered therein. The report shall, inter alia, cover the following:

a. Staffing-staff and labour organisation (including an organisation chart), staff and skilled labour qualifications, schedules of responsibilities, training programmes, administration, head office back-up and monitoring;
b. Operations- operations management and placing, operating instructions and procedure manuals, chemicals management, management of power supplies, diesel fuel receiving and monitoring, supernatant water and sludge disposal, receiving and monitoring consumables, laboratory management testing and quality monitoring, procedures for emergency conditions such as chlorine leaks and fire etc.;
c. Maintenance – maintenance planning, maintenance management, work control including preventive and corrective maintenance, outage planning. SCADA and computer maintenance, maintenance of landscaping, plants etc..

Compliance – efficiency and performance monitoring, performance testing, quality control etc.

The Engineer may instruct the Operator to revise these arrangement and methods if, in his opinion, the Operator's performance of the operation and/or the maintenance of the treatment works do not conform to the requirements of the Contract.

1.1210 Monthly reports

The Operator shall prepare and submit monthly reports to the Engineer, in four copies, and within 10 days of the last day of the period to which it relates. The report shall describe the operation and maintenance of the treatment works during the reporting period, with copies of the records submitted daily to the Engineer attached, and including summaries off the records in tabular and graphical form. The report shall include a section describing the performance in terms of compliance with the requirements of the Contract, the guarantees and the Operator's quality assurance system. The operator shall make available all supporting documents, records etc to the Engineer, if requested to do so. The report shall be in form approved by the Engineer to cover:

a. Operation: records of output; raw and treated water quality; supernatant water and sludge quantities and quality; deliveries, consumption, stocks of chemicals, consumables; power consumption; outages of water or sludge process units; usage of the DG Set and fuel consumed etc.
b. Maintenance: A list of plant breakdowns and spares consumed together with the supply of replacements, spares, repairs of items of plant etc. made during the month and a schedule of the maintenance planned to be carried out during the coming month etc. Every fortnight Contractor has to furnish assessment return listing all equipments are being maintained in good working order and list of equipment if any under break down showing date of break down and action taken to rectify and re commissioning the equipment and likely date of re commissioning of the equipment. All preventive maintenance actions carried out on each equipment shall also be mentioned in this fortnightly report
c. Staff, skilled labour and unskilled labour: returns of personnel on station and out of station, training programmes carried out, performance evaluation made etc.

d. Safety: Brief reports of all accidents, near misses and hazardous incidents including descriptions of causes, extent of injuries, action taken to deal with the accident or injury, precautions instituted to prevent repetition.
e. Laboratory: records including independent laboratory records.
f. Compliance: The Operator's assessment of compliance with the requirements of the Contract, the guarantees and the operator's QA system, together with proposals for corrective action to bring the deficient aspect of the performance into compliance etc.
g. The attendance of all engineering and supervisory staff shall be submitted every month for making monthly payment.

1.1211 Operator's Equipment

The Operator shall take possession of the treatment works from the Employer including the facilities, plant, equipment, tools, mandatory and recommended spares of BWSSB on "As is where is condition". The Operator bring additional equipment etc, necessary to operate and maintain the treatment works, such equipment when brought to the site shall be deemed to be exclusively intended for use on the Contract. The operator shall not remove from the site any such operator's equipment without the consent of the Engineer.

1.1212 Health and Safety Precautions

The Operator shall comply with all applicable health and safety regulation in all his activities at the treatment works. The operator shall ensure that his staff and labour are free of waterborne diseases or any other infectious diseases, which would make them unsuitable for employment at a water treatment facility. The Operator shall produce medical certificates at the time of mobilisation and periodically during employment at the treatment works. The Operator is responsible for ensuring the health and safety of his personnel, the prevention of accidents and epidemics. The Operator shall carry out a review to identify hazards to staff, to the facilities and to the environment. Accordingly, he shall ensure high standards of safety by the provision of suitable and training of his personnel as well as such equipment necessary and the setting up of suitable procedures.

The operator shall plan adequately for any accidents and shall make suitable arrangements with BWSSB and with the local authority, including the provision of an equipped sick-bay, the training of a number of his staff in first aid, transport etc so that, in the event of an accident, any injured personnel will provided with all reasonable emergency care

evacuated expeditiously to a hospital. A safety vehicle shall be kept at the plant premises round the clock.

The operator shall identify and institute procedures to deal with emergency situations arising from potential hazardous situations due to fire, gas, explosion, electricity, drowning, chemical handling, chlorine malfunction and leaks etc. These procedures shall include the provision of preplanned resources, co-ordination with BWSSB and the emergency services together with suitable training of the site personnel, including regular rehearsals and drills, so that such emergency conditions can be brought under control with minimum risk of injury and damage.

1.1213 Protection of the Environment

The Operator shall take all reasonable steps to protect the environment, both on and off the treatment works and to limit damage and nuisance to people and property resulting from pollution, noise and other of his operations. The operator shall ensure that all air emissions, surface discharges and effluent from the treatment works shall not exceed the values indicated and shall not exceed the values prescribed by law.

1.1214 Security of the Treatment works

The authorized persons entering the BWSSB premises at T.K.Halli, for the purposes of entry to the Treatment works, shall be limited to the employees of the operator, or such visiting persons for whom the Operator has obtained the prior written permission of the Engineer. The Operator shall be fully responsible for the safety and the behavior of such persons while they are on BWSSB’s premises, and shall keep and prohibit them from encroaching other than for the purposes of travelling through BWSSB’s premises to enter the treatment works or for working at the outfall, the pipeline to the clear water reservoir or on the chlorine residual equipment or working in additional areas as have been agreed by the Engineer. The Operator shall be responsible for keeping unauthorized persons off the Treatment works. Operator shall appoint licensed security personnel at the site to guard the premises, around the clock in year.

1.1215 Consumption of Power

The operator shall arrange his operations to restrict power consumption to be within the functional guarantees for the delivered treated water as per clause 16.24 of Conditions of Contract.

1.1216 Deleted

2. Eligible Tenderers

2.1 Tenderers shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by the Government of Karnataka

2.2 Tenders from Joint ventures are not acceptable.

3. Qualification of the Tenderer:

1 3.1 All Tenderers shall provide the requested information accurately and in sufficient detail in Section 3: Qualification information.

1 3.2 To qualify for award of this contract, each Tenderer in its name should have in the last five financial years i.e. 2020-21 to 2024-25)

1) Financial Criteria: Should have achieved in at least two financial years a minimum financial turnover (in all classes of civil engineering construction works only) of Rs.1393.28 lakhs

2) Performance & Work Qualification:

i) The bidder should have experience in the last ten years, i.e., 2015-16 to 2024-25, as a Prime Contractor / Joint Venture partner in case of JV having operated and maintained One Water Treatment Plant designed based on DAF or any advanced technology with automation facilities for at least 3 continuous years in the last Ten Years and also satisfactorily treating the water to prescribed IS 10500:2012 water quality standards of value not less than Rs. 1741.6 Lakhs

ii) The bidder should have experience in the last ten years, i.e., 2015-16 to 2024-25, as a Prime Contractor / Joint Venture partner in case of JV having operated and maintained One or multiple Water Treatment Plants under a single contract/project, with a cumulative of 440 MLD capacity designed based on DAF or any advanced technology with automation facilities for atleast 3 continuous years in the last Ten Years and also satisfactorily treating the water to prescribed IS 10500:2012 water quality standards.

OR

The bidder should have experience in the last ten years, i.e., 2015-16 to 2024-25, as a Prime Contractor having Designed and constructed of minimum 440 MLD capacity Water Treatment Plant designed based on DAF or any advanced technologies having sludge recycling facility, PLC and SCADA within last Ten Years and Operated and Maintained this plant for atlesat one year satisfactorily and producing final finished water quality as per IS 10500:2012 drinking water quality standards.

iii) The bidder should have necessary personnel and infrastructure to do the work and should possess qualified and experienced engineers having experience in Water treatment process and operation and maintenance of Water treatment Plant and laboratory chemists experienced in Water analysis in the last Ten years.

2

3.3 Each Tenderer should further demonstrate:

(a) Availability by owning 50% of the required / specified key and critical equipment for this work and remaining 50% can be deployed on lease / hire basis for all works provided, the relevant documents (commitment agreements etc.,) for availability for this work shall be furnished. Some of the equipments are: Not Applicable

(b) liquid assets and /or availability of credit facilities of no less than Rs.174.16 Lakhs (Credit lines/ letter of credit/ certificates from banks for meeting the fund requirement etc.

3.4 To qualify for a package of contracts made up of this and other contracts for which tenders are invited in this IFT, the Tenderer must demonstrate having experience and resources to meet the aggregate of the qualifying criteria for the individual contracts.

3.5 Sub-contractors' experience and resources will not be taken into account in determining the Tenderer's compliance with the qualifying criteria

3.6 Tenderers who meet the above specified minimum qualifying criteria, will only be qualified, if their available tender capacity is more than the total tender value. The available tender capacity will be calculated as under:

Assessed available tender capacity = (A*N*1.5 - B)

Where

A = Maximum value of works in Water business executed in any one year during the last five years (updated to 2025-26 price

level) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which tenders are invited that is Five Years.

B = Value, at 2025-26 price level, of existing commitments and on-going works to be completed during the next Five years.

Note: The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Employer in charge, not below the rank of an Executive Engineer or equivalent.

3.7 Even though the Tenderers meet the above criteria, they are subject to be disqualified if they have:

- made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.; and/or
- participated in the previous Tender for the same work and had quoted unreasonably high tender prices and could not furnish rational justification.

4. One Tender per Tenderer:

4.1 Each tenderer shall submit only one tender for one package. A tenderer who submits or participates in more than one Tender (other than as a sub-contractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the Tenderer’s participation to be disqualified.

5. Cost of Tendering:

5.1 The tenderer shall bear all costs associated with the preparation and submission of his tender, and the Employer will in no case be responsible and liable for those costs.

6. Site visit:

6.1 The Tenderer at his own responsibility and risk is encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Tender and entering into a contract for Work of Comprehensive Operation & Maintenance (O & M) of CWSS Stage-IV, Phase-II, 550 MLD Water Treatment Plant (WTP) at T.K. Halli for 5 years (Call-3) The cost of visiting the Site shall be at the Tenderer’s own expense.

B. Tender documents

7. Content of Tender documents

7.1 The set of tender documents shall have all the Sections given in Contents - Page 3.

7.2 Submission of tender documents as per e-tender procedures shall be followed.

8. Clarification of Tender Documents

8.1 A prospective tenderer requiring any clarification of the tender documents may notify the Employer in writing at the Employer's address indicated in the invitation to tender. The Employer will respond to any request for clarification which he receives earlier than 15 days prior to the deadline for submission of tenders. The copies of the Employer's response will be forwarded to all purchasers of the tender documents through e-mail, including a description of the enquiry but without identifying its source. The same will available in the website of e-tender https://www.kppp.karnataka.gov.in .

8.2 Pre-tender meeting:

8.2.1 The tenderer or his authorized representative is invited to attend a pre-tender meeting which will take place at Office of the Chief Engineer (Cauvery Head works), Cavery Bavan, 8th Floor, Bangalore on 27/05/2026 at 15:00 hrs

8.2.2 The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage

8.2.3 The tenderer is requested to submit any questions in writing or e-mail to reach the Employer not later than one week before the meeting.

8.2.4 Minutes of the meeting, including the text of the questions raised (without identifying the source of enquiry) and the responses given will be transmitted without delay to all purchasers of the tender documents. Any modification of the tender documents which may become necessary as a result of the pre-tender meeting shall be made by the Employer exclusively through the issue of an Addendum.

8.2.5 Non-attendance at the pre-tender meeting will not be a cause for disqualification of a tenderer.

9. Amendment of Tender documents

9.1 Before the deadline for submission of tenders, the Employer may modify the tender documents by issuing addenda.

9.2 Any addendum thus issued shall be part of the tender documents and shall be communicated in writing to all the purchasers of the tender documents.

9.3 To give prospective Tenderers reasonable time in which to take an addendum into account in preparing their tenders, the Employer shall extend as necessary the deadline for submission of tenders, in accordance with Sub-Clause 16.2 below.

C. Preparation of Tenders

10. Documents comprising the Tender

10.1 The tender submitted in e-procurement by the Tenderer shall contain the documents as follows:

(a) Evidence of Earnest Money Deposit payment;
(b) Scanned copies of Qualification Information as per formats given in Section 3;
(c) The form of Tender (in the format indicated in Section 4) duly signed
(d) Priced Bill of Quantities (Section 9);

and any other materials required to be completed and submitted by Tenderers in accordance with these instructions. The documents listed under Sections 3, 4, 6 and 9 shall be filled in without exception. The Earnest Money Deposit shall be paid through any one of the forms OTC,NEFT, DEBIT CARD and CREDIT CARD through e-portal only on or before the time of submission mentioned in IFT. ALL THE PHOTOCOPIES OF THE DOCUEMNTS SHOULD BE NOTARISED.

10.2 Tenderers submitting tenders together with other contracts stated in the IFT to form a package will so indicate in the tender together with any discounts offered for the award of more than one contract.

11. Tender prices

11.1 The contract shall be for the whole works as described in Sub-Clause 1.1, based on the priced Bill of Quantities submitted by the Tenderer.

11.2 The bidder shall fill in the unit rates in figures for all items of the Works described in the Bill of Quantities. The system will automatically convert the unit rates mentioned in figures to words and also calculate the amount of that item as well as the total Bid value. Items for which no rate is entered by the bidder will not be paid for by the Employer when executed

and shall be deemed covered by the other rates in the Bill of Quantities

11.3 All duties, taxes, and other levies are payable by the contractor under the contract or for any other cause, shall be included in the rates excluding GST, prices and total Tender Price submitted by the Tenderer.

11.4 Deleted

12. Tender validity

12.1 Tenders shall remain valid for a period of not less than Ninety days (90 days) after the deadline date for tender submission specified in Clause 16 of ITT. A tender valid for a shorter period shall be rejected by the Employer as non-responsive.

12.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the Tenderers may extend the period of validity for a specified additional period. The request and the Tenderers' responses shall be made in writing. A Tenderer may refuse the request without forfeiting his earnest money deposit. A Tenderer agreeing to the request will not be required or permitted to modify his tender, but will be required to extend the validity of his earnest money deposit for a period of the extension, and in compliance with Clause 13 of ITT in all respects.

13. Earnest money deposit

13.1 Earnest Money Deposit only through e-procurement portal only using any of the following four modes.

a) Credit Card (Online Payment)

b) Direct Debit Using Internet Banking (Online Payment)

c) Remittance at the Bank Counter - Challan (Offline Payment)

d) NEFT (online payment).

13.2 Instruments having fixed validity issued as earnest money deposit for the tender shall be valid for 45 days beyond the validity of the tender.

13.3 Any tender not accompanied by an acceptable earnest money deposit and not secured as indicated in Sub-Clauses 13.1 and 13.2 above shall be rejected by the Employer as non-responsive.

13.4 The earnest money deposit of unsuccessful Tenderers will be returned within 30 days of the end of the tender validity period specified in Sub-Clause 12.1 of ITT.

13.5 The earnest money deposit of the successful Tenderer will be discharged when the Tenderer has signed the Agreement and furnished the required Performance Security.

13.6 The earnest money deposit may be forfeited:

(a) If the Tenderer withdraws the Tender after tender opening during the period of tender validity;
(b) If the Tenderer does not accept the correction of the Tender Price, pursuant to Clause 24; or
(c) In the case of a successful Tenderer, if the Tenderer fails within the specified time limit to
(i) Sign the Agreement; or
(ii) Furnish the required performance Security deposit

14. Format and signing of Tender

14.1 The completed bid comprising of documents indicated in ITT 10, should be uploaded in the e-procurement portal along with scanned copies of requisite certificates those are mentioned in different sections in the bid document and scanned copy of Bid Security / EMD

14.2 All the documents should be uploaded in e-procurement portal. Tenderer should take a print out of the declaration letter provided in the website on company letter head and should sign, stamp and upload the same to the tender

14.3 Deleted

D. Submission of Tenders

15. Up-loading & submission of tenders.

15.1 The tenders should be uploaded only through e-procurement portal Tender should contain

A. Technical Tender consisting of following:

a. All the documents with required details in prescribed format; those are mentioned in different sections in the Tender. Form of Tender, Declaration statement regarding Customs/ Excise duty exemption for materials/ construction equipment brought to site as mentioned in Section 2, etc., shall be downloaded, filled with required details, signed, scanned& uploaded to the e-procurement portal https://www.kppp.karnataka.gov.in .

b. The above documents along with notarized copies of documentary evidences as indicated in Section—2 of ITT, Section-3 of Qualification information & Section 4 of Forms of Tender shall be scanned and uploaded to the website compulsorily, failing which tender will be rejected in view of incomplete bid document.

B. Financial Tender consisting of Bill of Quantities

The tenderer shall quote their Rates in e-procurement portal only.

NOTE:

1. URL of the Website for tender submission through e-procurement portal & Address for submission are as follows:

   (www.kppp.karnataka.gov.in)

2. The details related to submission of tenders, downloading / uploading of documents or other details are available online in e-procurement website or contact e-procurement helpdesk -0802550 1216/2550 1227

15.2. Deleted

15.3 BID reference Number will be automatically generated by the server.

15.4 Deleted

16. Deadline for submission of the Tenders

16.1 Tenders must be uploaded through e-procurement portal before 15:00 hrs on or before 16/06//2026.

16.2 The Employer may extend the deadline for submission of tenders by issuing an amendment in accordance with Clause 9, in which case all rights and obligations of the Employer and the Tenderers previously subject to the original deadline will then be subject to the new deadline.

17. Late Tenders

17.1 Deleted

17.2 The software of e-procurement system will not allow the Bidder to upload the documents after expiration of the stipulated date & time of Bid submission. The Bidder shall refer the server time, which will be displayed in the e-procurement portal. BWSSB will not be responsible for non-receipt of bids on the stipulated date & time prescribed in clause 16, due to Internet Problems, improper uploading or any other related problems. In case of connectivity problems, Tenderer may contact Helpdesk of the e-tender service provider and may also draw the attention of tender inviting authority.

18. Modification and Withdrawal of Tenders

18.1 Tenderers may “modify” and “withdraw” their tenders multiple numbers of times, until the deadline for submission of tenders by operating the relevant provision made in e-procurement. If the Tenderer withdraws the tender before the deadline for submission of tenders and later if he is interested to submit the tender once again, may do so within the stipulated date & time as mentioned in Clause 16. In this case within the stipulated date & time, the tenderer can once again submit the requisition to the officer inviting tenders for access to the withdrawn tender document for resubmission. For this tenderer need not make any additional payment towards the cost of tender document. Communication of modification / withdrawal by other means will not be accepted.

18.2 Deleted.

18.3 No Tender may be modified after the deadline for submission of Tenders.

18.4 Withdrawal or modification of a Tender between the deadline for submission of Tenders and the expiration of the original period of Tender validity specified in Clause 12.1 above or as extended pursuant to Clause 12.2 may result in the forfeiture of the earnest money deposit pursuant to Clause 13.

18.5 Tenderers may offer discounts for individual items by simply modifying the quoted unit price in the Bill of Quantities. Also, Tenderer may enter their overall discount, at specified location in the Bill of Quantities only, by submitting tender modifications in accordance with this clause. Communication of discount by other means will not be accepted.

E. Tender opening and evaluation

19. Opening of Technical portion of Tenders and evaluation to determine qualified Tenderers:

19.1 The Employer will open the Technical details of all the Tenders received (except those withdrawn), including modifications made pursuant to Clause 18, in the presence of the Tenderers or their representatives who choose to attend. In the event of the specified date of Tender opening being declared a holiday for the Employer, the Tenders will be opened at the appointed time and location on the next working day.

19.2 Withdrawal proposal submitted pursuant to clause 18 shall be read out first and their bids shall not be opened.

19.3 The Tenderers names, the presence or absence of earnest money deposit (amount, format and validity), the submission of qualification information and such other information as the Employer may consider appropriate will be announced by the Employer at the opening.

19.4 The Employer shall prepare minutes of the Tender opening, including the information disclosed to those present in accordance with Sub-Clause 19.3.

19.5 The Price Tenders of all the Tenderers including modifications for financial tenders cannot be opened as this is programmed to open later after evaluation of the Technical details of the participating Tenderers.

19.6 The Employer will evaluate and determine whether each tender (a) meets the eligibility criteria defined in ITT Clause 3; (b) is accompanied by the required earnest money deposit as per stipulations in ITT Clause-13 and (c) meets the minimum qualification criteria stipulated in IFT . The Employer will draw out a list of qualified Tenderers.

20. Opening of Price Bid of qualified Tenderers and evaluation:

20.1 The Employer will inform all the Qualified Tenderers the time, date and venue fixed for the opening of the price Tenders. The Employer will open the price tender of Qualified Tenderers at the appointed time and date in the presence of the Tenders or their representatives who choose to attend. In the event of the specified date of Price tender opening being declared a holiday for the Employer, the price tenders will be opened at the appointed time and location on the next working day.

20.2 Deleted.

20.3 The Tenderers' names, the Tender prices, the total amount of each Tender, any discounts, and withdrawals, and such other details as the Employer may consider appropriate, will be announced by the Employer at the opening. No Tender shall be rejected at Tender opening.

20.4 The Employer shall prepare minutes of the Price Tender opening, including the information disclosed to those present in accordance with Sub-Clause 20.3 of ITT.

21. Process to be confidential

21.1 Information relating to the examination, clarification, evaluation, and comparison of Tenders and recommendations for the award of a contract shall not be disclosed to

Tenderers or any other persons not officially concerned with such process until the award to the successful Tenderer has been announced. Any effort by a Tenderer to influence the Employer's processing of Tenders or award decisions may result in the rejection of his Tender.

22. Clarifications of Tenders

22.1 To assist in the examination, evaluation, and comparison of Tenders, the Employer may, at his discretion, ask any Tenderer for clarification of his Tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing, but no change in the price or substance of the Tender shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Tenders in accordance with Clause 24 of ITT.

22.2 Subject to sub-clause 22.1, no Tenderer shall contact the Employer on any matter relating to its Tender from the time of the Tender opening to the time the contract is awarded. If the Tenderer wishes to bring additional information to the notice of the Employer, it should do so in writing.

22.3 Any effort by the Tenderer to influence the Employer in the Employer’s Tender evaluation, Tender comparison or contract award decisions may result in the rejection of the Tenderers’ Tender.

23. Examination of Tenders and determination of responsiveness

23.1 Prior to the detailed evaluation of Tenders, the Employer will determine whether each Tender; (a) has been properly signed; and; (b) is substantially responsive to the requirements of the Tender documents like [(a)Form of Tender, (b)Declaration statement regarding Customs/ Excise duty exemption for materials/ construction equipment brought to site as mentioned in Section 2 etc.,] Scanned / uploaded [including documents those are required to be furnished as per Section 2, 3 & 4 of the tender,]; (c) is accompanied by the required securities and; (d) is substantially responsive to the requirements of the tendering documents.

23.2 A substantially responsive Tender is one which conforms to all the terms, conditions, and specifications of the Tender documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the Tender documents, the Employer's rights or the Tenderer's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive

position of other Tenderers presenting substantially responsive Tenders.

23.3 If a Tender is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

24. Correction of errors

24.1 (a) Once the Tenderer key in the rates in figures, in the Bill of quantities provided, rate in words will be auto generated by the system.

(b) Once the Tenderer key in the rates in figures, in the Bill of quantities provided, the system will automatically calculate the amount of that item as well as the total Bid value.

24.2 Deleted

24.3 Deleted

24.4 Deleted

25. Evaluation and comparison of Tenders

25.1 The Employer will evaluate and compare only the Tenders determined to be substantially responsive in accordance with Clause 23 of ITT.

25.2 In evaluating the Tenders, the Employer will determine for each Tender the evaluated Tender Price by adjusting the Tender Price as follows:

(a) Making any correction for errors pursuant to Clause 24 of ITT; and

(b) Making appropriate adjustments to reflect discounts or other price modifications offered in accordance with Sub Clause of 18.5 of ITT.

25.3 The Employer reserves the right to accept or reject any variation, deviation, or alternative offer. The variations, deviations, and alternative offers and other factors which are in excess of the requirements of the Tender documents or otherwise result in unsolicited benefits for the Employer shall not be taken into account in Tender evaluation.

25.4 The estimated effect of the price adjustment conditions under Clause 40 of the Conditions of Contract, during the implementation of the Contract, will not be taken into account in tender Evaluation

25.5 If the tender of the successful tenderer is seriously unbalanced in relation to the Employer’s estimate of the cost

of the work to be performed under the contract, the Employer may require the Tenderer to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, the Employer may require that the amount of the performance security set forth in Clause 29 of ITT be increased at the expense of the successful Tenderer to a level sufficient to protect the Employer against financial loss in the event of default of the successful under the contract.

F. Award of Contract

26. Award criteria

26.1 Subject to Clause 27 of ITT, the Employer will award the Contract to the Tenderer whose Tender has been determined to be substantially responsive to the Tender documents and who has offered the lowest evaluated Tender Price, provided that such Tenderer has been determined to be (a) eligible in accordance with the provisions of Clause 2, and (b) qualified in accordance with the provisions of Clause 3 of ITT.

27. Employer's right to accept any Tender and to reject any or all Tenders

27.1 Notwithstanding Clause 26 of ITT, the Employer reserves the right to accept or reject any Tender, and to cancel the Tender process and reject all Tenders, at any time prior to the award of Contract, without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected Tenderer or Tenderers of the grounds for the Employer's action.

28. Notification of award and signing of Agreement

28.1 The Tenderer whose Tender has been accepted will be notified of the award by the Employer prior to expiration of the Tender validity period by cable, telex, e-mail or facsimile confirmed by registered letter. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").

28.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of Security deposit in accordance with the provisions of Clause 29 of ITT.

28.3 The Agreement will incorporate all agreements between the Employer and the successful Tenderer. It will be kept ready for signature of the successful Tenderer in the office of Employer within 30 days following the notification of award along with the Letter of Acceptance. Within 20 days of receipt, the successful Tenderer will sign the Agreement and deliver it to the Employer.

28.4 Upon the furnishing by the successful Tenderer of the Performance Security, the Employer will promptly notify the other Tenderers that their Tenders have been unsuccessful.

29. Security deposit

29.1 Within 20 days of receipt of the Letter of Acceptance, the successful Tenderer shall deliver to the Employer a Performance security deposit in any of the forms given below for an amount equivalent to 5% of the Contract price plus additional security for unbalanced tenders in accordance with Clause 25.5 of ITT and Clause 43 of the Conditions of Contract. :

1 - Cash or

2 - Banker's cheque/Demand draft,/Pay Order in favour of Chairman, BWSSB payable at Bangalore or

3 - A bank guarantee in the form given in Section 10;

29.2 If the performance security deposit is provided by the successful Tenderer in the form of a Bank Guarantee, it shall be issued either by a Nationalized/Scheduled bank.

29.3 The performance security deposit if furnished in cash or demand draft can, if requested, be converted to interest bearing securities at the cost of the contractor.

29.4 Failure of the successful Tenderer to comply with the requirements of Sub-Clause 29.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Earnest money deposit.

30 Advance Payment and Security:

30.1. Deleted

31. Corrupt or Fraudulent practices

31.1 The Board requires that the Tenderers/Suppliers/Contractors, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, Board:

(a) will reject a proposal for award if it determines that the Tenderer recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

(b) will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a Board contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a Board contract.

31.2 Furthermore, Tenderers shall be aware of the provision stated in sub-clause 50.2 of the Conditions of Contract.

SECTION 3: QUALIFICATION INFORMATION

QUALIFICATION INFORMATION

The following form is to be downloaded, particulars are to be filled, scanned & uploaded by the Bidder.The information to be filled in by the Tenderer hereunder will be used for purposes of computing Tender capacity as provided for in Clause 3 of the Instructions to Tenderers. This information will not be incorporated in the Contract.

1.1 Constitution or legal status of Tenderer [Attach copy]
Place of Registration _____
(Attach Copy)
Principal place of business: _____

1.2 Total value of water business works Executed and payments received in the Last five years (in Rs. Lakhs) (Attach Certificate from Chartered Accountant)

2020-21 _____
2021-22 _____
2022-23 _____
2023-24 _____
2024-25 _____

1.3 Work performed as Prime Contractor (in the same name) on works of similar nature over during the five years specified in 1.2 above.

Project Name	Name of Employer	Description of Work	Contract Number	Value of contract Rs. Lakhs	Date of issue of work order	Specified period of completion	Actual date of completion	Remarks explaining reasons for delay in completion of work
1	2	3	4	5	6	7	8	9

1.4 Quantities of work executed as prime contractor (in the same name) during the last five years specified in 1.2 above:

Year	Name of Work	Name of Employer	Quantity of work performed (cum)			Remarks (Indicate contract reference)
			440MLD WTP	PLC/ SCADA	Personnel experience	
2020-21						
2021-22						
2022-23						
2023-24						
2024-25						

1.5 Information on works for which Tenders have been submitted and works which are yet to be completed as on the date of this Tender.

(A) Existing commitments and on-going works:

Description of Work	Place& State	Contract No. & Date	Name and Address of Employer	Value of Contract (Rs. lakhs)	Stipulated period of completion	Value of works remaining to be completed (Rs. lakhs)	Anticipated date of completion
1	2	3	4	5	6	7	8

(B) Works for which Tenders already submitted:

Description of Work	Place & State	Name and Address of Employer	Estimated value of works (Rs. lakhs)	Stipulated Date period of completion	when decision is expected	Remarks if any
1	2	3	4	5	6	7

1.6. Deleted

1.7 Reports on the financial standing of the tenderer, such as profit and loss statements and auditor’s reports for the last five years;

1.8 Qualification and experience of the key technical and management personnel in permanent employment with the tenderer and those that are proposed to be deployed on this contract, if awarded.

1.9. Name, address, and telephone, telex, and fax numbers of the Tenderers' bankers who may provide references if contacted by the Employer.

1.10 Evidence of access to financial resources to meet the qualification requirement specified in ITT Clause 3.3(b): Cash in hand, Letter of Credit etc. List them below and attach certificate from the Banker in the suggested format as under:

BANKER'S CERTIFICATE

This is to certify that M/s. …….. Is a reputed company with a good financial standing. If the contract for this work, namely …….. (Name of the work) is awarded to the above firm, we shall be able to provide overdraft/credit facilities to the extent of Rs. ……. to meet the working capital requirements for executing the above contract

Name of the Bank, Senior Bank Manger
Address:……

1.11 Proposals for subcontracting components of works amounting to more than 20% of the contract price

Item of Work	Value of Sub-Contract	Identified Sub-Contractor (Name and address)	Experience of similar work

1.12 Information on litigations in which the Tenderer is involved-

Other Party (ies)	Employer	Details of dispute	Amount involved	Remarks showing present status

1.13 The proposed methodology and program of construction, backed with equipment planning and deployment, duly supported with broad calculations and quality control procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated period of completion as per milestones-NOT APPLICABLE

SECTION 4: FORMS OF TENDER, LETTER OF ACCEPTANCE, NOTICE TO PROCEED WITH THE WORK AND AGREEMENT FORM

Form of Tender

Description of the Work: Work of Comprehensive Operation & Maintenance (O & M) of CWSS Stage-IV, Phase-II, 550 MLD Water Treatment Plant (WTP) at T.K. Halli for 5 years (Call-3)

To

_____
_____
_____

GENTLEMEN,

We offer to execute the Works described above in accordance with the Conditions of Contract accompanying this Tender for the Contract Price of _____ [in figures] (_____ _____) [in letters].

This Tender and your written acceptance of it shall constitute a binding contract between us. We understand that you are not bound to accept the lowest or any Tender you receive.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely “Prevention of Corruption Act 1988”.

We hereby confirm that this Tender complies with the Tender validity and Earnest money deposit required by the Tender documents.

We attach herewith our current income-tax clearance certificate.

Yours faithfully,

Authorized Signature:

Name & Title of Signatory:

_____
Name of Tenderer _____
Address: _____

NOTE: This form shall be downloaded, filled and printed on the Company letter head, Signed, Scanned and uploaded. Failure to furnish the signed copy will lead to Non-Responsive Tender.

Letter of Acceptance

(letterhead paper of the Employer)
_____ [date]

To:
_____[name and address of the Contractor]
Dear Sirs,

This is to notify you that your Tender dated _____ for execution of the Comprehensive Operation & Maintenance of 400 MLD WTP at T.K.Halli of CWSS, IV Stage, Phase-I [name of the contract and identification number, as given in the Instructions to Tenderers] for the Contract Price of Rupees _____ (_____) [amount in words and figures], as corrected and modified in accordance with the Instructions to Tenderers is hereby accepted by our Agency.

You are hereby requested to furnish Security deposit plus additional security for unbalanced tenders in terms of Clause 25.5 of ITT, in the form detailed in Clause 29.1 of ITT for an amount of Rs._____ within 20 days of the receipt of this letter of acceptance valid up to 30 days from the date of expiry of Defects Liability Period i.e. up to ..... and sign the contract, failing which action as stated in Para 29.4 of ITT will be taken.

Yours faithfully,

Authorized Signature
Name and Title of Signatory
Name of Agency

Issue of Notice to proceed with the work

(letterhead of the Employer)
——————— (date)
To
——————————————— (name and address of the Contractor)
———————————————
———————————————
Dear Sirs:

Pursuant to your furnishing the requisite security deposit as stipulated in ITT Clause 29.1 and signing of the contract agreement for the construction of ————————[name of the contract] a Tender Price of

Rs.————————, you are hereby instructed to proceed with the execution of the said works in accordance with the contract documents.

Yours faithfully,

(Signature, name and title of signatory authorized to sign on behalf of Employer)

Agreement Form

Agreement

This agreement, made the _____day of _____20_____, between_____ _____[name and address of Employer] (hereinafter called "the Employer") of the one part and _____ _____ _____[name and address of contractor] (hereinafter called "the Contractor") of the other part.

Whereas the Employer is desirous that the Contractor execute _____ _____ _____[name and identification number of Contract] (hereinafter called "the Works") and the Employer has accepted the Tender by the Contractor for the execution and completion of such Works and the remedying of any defects therein at a contract price of Rupees.....

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

4. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz:
   i) Letter of Acceptance;
   ii) Notice to proceed with the works;
   iii) Contractor's Tender;
   iv) Contract Data;
   v) Conditions of contract (including Special Conditions of Contract);
   vi) Specifications;
   vii) Drawings;
   viii) Bill of Quantities; and
   ix) Any other document listed in the Contract Data as forming part of the contract.

In witness whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The Common Seal of _____
was hereunto affixed in the presence of:
Signed, Sealed and Delivered by the said
_____
_____

in the presence of:
Binding Signature of Employer _____
Binding Signature of Contractor
_____

SECTION 5: CONDITIONS OF CONTRACT

Table of Contents

A. General **Page No**.

1. Definitions 45
2. Interpretation 50
3. Law governing contract 51
4. Employers decisions 51
5. Delegation 51
6. Communications 51
7. Subcontracting 51
8. Other Contractors 51
9. Personnel 51
10. Employer’s and Contractor’s risks 56
11. Employer’s risks 56
12 Contractor’s risks 58
13. Insurance 59
14. Site Investigation Report 64
15 Query about Contract Data 64
16 Contractor to operate & maintain the plant 64
17. The Works to be completed by Intended Completion Date 75
18 Approvals by the Employer 75
19. Safety 75
20. Discoveries 75

21. Possession of the Site 75
22. Access to the Site 75
23. Instructions 76
24. Procedure for resolution of disputes 76

B. Time Control
25. Program 77
26. Extension of the Intended Completion Date 77
27. Delays ordered by the Employer 77
28. Management meetings 77

C. Quality Control
29. Identifying defects 78
30. Tests 78
31. Correction of defects 78
32. Uncorrected defects 78

D. Cost Control
33 Bill of Quantities (BOQ) 79
34 Variations 79
35. Payment for Variations 80
36. Submission of bills for payment 80
37 Payments 80
38. Compensation events 89
39. Tax 89
40 Price Adjustment 89
41. Liquidated damages 91
42. Advance Payments 91
43. Securities 91
44. Cost of repairs 91

E Finishing of Contract
45. Completion 92
46. Taking Over 95
47. Final account 95
48. As built drawings and/or Operating and Maintenance Manuals 98
49. Termination 98
50 Payment upon termination 101
51. Property 103
52. Release from performance 103

F Special Conditions of Contract 104

Conditions of Contract

A. General

1. Definitions

1.1 Terms which are defined in the Contract Data are not also defined in the Conditions of Contract but keep their defined meanings. Bold letters are used to identify defined terms.

Bill of Quantities means the priced and completed Bill of Quantities forming part of the Tender.

Compensation events are those defined in Clause 38 hereunder.

The **Completion Date** is the date of completion of the Works as certified by the Employer in accordance with Sub Clause 46.1.

The **Contract** is the contract between the Employer and the Contractor to execute, complete and maintain the Works. It consists of the documents listed in Clause 2.2 below.

The **Contract Data** defines the documents and other information which comprise the Contract.

The **Contractor** is a person or corporate body whose Tender to carry out the Works has been accepted by the Employer.

The **Contractor's Tender** is the completed Tender document submitted by the Contractor to the Employer.

The **Contract price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; months are calendar months. And year means 365 days.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The **Defects liability period** is the period named in the Contract Data and calculated from the Completion Date.

The **Employer** is the party who will employ the Contractor to carry out the Works.

Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The **Initial Contract price** is the Contract Price listed in the Employer's Letter of Acceptance.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended

Completion Date may be revised only by the Employer by issuing an extension of time.

Materials are all supplies, including consumables, used by the contractor for incorporation in the Works.

Plant is any integral part of the Operation & Maintenance which is to have a mechanical, electrical, electronic, PLC and SCADA, chemical or biological function.

The **Site** is the area defined as such in the Contract Data.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Employer.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the works. It does not necessarily coincide with any of the Site Possession Dates.

A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract which includes work on the Site.

A **Variation** is an instruction given by the Employer which varies the Works as per clause 34.

The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the Contract Data.

'Tender' means the Operator's priced offer to the Employer for the Operation and Maintenance of the Water Treatment Plant at T.K.Halli, under the Cauvery Water Supply scheme Project, Stage IV-Phase-II.

'The Operator's Proposal' means the Operator's proposals and methodology for the operation and maintenance of Treatment Works.

'Letter of Acceptance' means the formal acceptance of the Tender by the Employer.

'Contract Agreement' means the contract agreement (if any) in the form agreed between the parties to record the Contract.

1.12 Persons.

a. 'Operator' means the person who's Tender has been accepted by the Employer and the legal successors in title to such person, but not (except with the consent of the Employer) any assignee of such person.

b. 'Engineer' means the person appointed by the Employer to act as Engineer for the purposes of the Contract, as named in Sub Clause 1.21, or other person appointed from time to time by the Employer and notified as such to the Operator.

c. ‘Plant Manager/Process Engineer’ means the person appointed from time to time by the operator under sub clause 1.124 of ITT.

1.13 Dates, Times and periods.

a. ‘Base date’ means the date 28 days prior to the latest date for the submission of the Tender for acceptance by the Employer.

b. ‘Effective Date’ means the date on which the Contract entered into legal force and effect.

c. ‘Commencement Date’ means the date on which the Operator receives the notice to commence issued by the Engineer under Clause 1.2

‘Contract period’ means the period from the Commencement Date to the completion date on which the Operator ceases to operate and maintain the treatment works as certified by the Engineer under Clause 45.2 (also as per clause 45.33).

1.14 Completion

a. ‘ Taking Back Certificate’ means the certificate issued under Clause 45.2.

b. ‘ Defects Liability Certificate’ means the certificate issued under Clause 45.3.

1.15 Money and Payments.

a. ‘Monthly Lump Sum Rate’ means the rate stated in the letter of Acceptance payable to the operator each month for the operation and maintenance of the Water Treatment Plant in accordance with the provisions of the Contract and of Sub Clause 37.3

b. ‘Contract Price’ means the sum stated in the Letter of Acceptance payable to the Operator for the full operation and maintenance of the Treatment Plant in accordance with the provisions of the contract and sub Clause 37.3 The Contract Price is the monthly lumpsum fixed rate in the Operator’s Tender for the operation and maintenance of the treatment works for the period of operation and maintenance as defined in Clause 1.2. ‘Cost ‘ means the expenditure properly incurred by the Operator, for which the Operator is entitled to be reimbursed in accordance with these Conditions, for the provision of certain supplies and services, whether on or off the Treatment Works. Such costs are to be verified by receipts of expenditure. Any entitlement to overheads and profit shall be added to such cost at the percentage stated in the relevant Clause.

c. ‘Interim Payment Certificate’ means any payment certificate issued by the Engineer under Clause 37.5 other than the Final Payment Certificate.

d. ‘Final Payment Certificate ‘ means the payment certificate issued by the Engineer under Sub Clause 47.74

e. ‘Final Statement’ means the agreed statement defined in Sub Clause 47.72

1.16 Other Definitions.

a. 'Treatment Works' means the Water Treatment facility constructed at T.K.Halli, for BWSSB under Cauvery Water Supply scheme, Project Stage IV – Phase-II and hand over by the Employer to the Operator for the purposes of operation and maintenance in accordance with the Contract. The Treatment Works are located within BWSSB's premises at T.K.Halli and is bounded by the battery limits. As described in Sub Clause 1.1215 of ITT the Operator, is responsible for maintaining certain facilities outside these battery limits.

c. 'Tools, tackles and equipment' referred to in Sub Clause 16.28 means the tools, lifting tackle, access and greasing equipment required for the maintenance, repair, testing calibration and overhaul of the plant, machinery and apparatus, installed under CWSS, IV Stage Phase-II Work and issued by Employer to the Operator at the Commencement of the Contract. These shall include the equipment etc., provided under CWSS, IV Stage, Phase-II contract for the laboratory.

d. 'Spares' means the mandatory and recommended spares issued by the Employer to the operator at the Commencement of the Contract described in Sub Clause 16.281 and 16.283

e. 'Shift 'means 8 hours working period and each day will have 3 shifts.

1.17 Law

The law of the Contract is stated in clause 24.

1.18 Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. If there is an ambiguity or discrepancy in the documents, the Engineer shall issue any necessary clarification to the Operator, and the priority of the documents shall be as follows:

Letter of Acceptance,
Conditions of contract,
The As-built drawings, O&M manuals (including the vendor's manuals)
Tender,
Operator's proposal

1.19 Communications.

Wherever in the Contract provision is made for giving or issue of any notice, consent, approval, certificate, instruction or determination by any person, unless otherwise specified such any notice, consent, approval, certificate, instruction or determination shall be in writing and the works 'notify, 'certify', 'instruct' and 'determine' shall be construed accordingly. Any such consent, approval, certificate or determination shall not unreasonably withhold or delayed.

1.20 Commencement of the Contract and the Contract Period

The O & M Contract shall commence upon the written instruction of the Engineer to mobilise, which will be issued as soon as possible after the acceptance of the tender. The Operator shall mobilise sufficient man power within 14 days to commence the operation and maintenance of the treatment works. The Operator shall operate and maintain the treatment plant for a period of Three years. The Contract period shall be the period of operation and maintenance plus a six-month defects liability period.

1.21 The Employer.

General.

The Executive Engineer (K-3) will manage the day-to-day operations of the Stage IV, Phase-II Works, including the treatment works at T.K.Halli. For the purposes of this Contract, the Chief Engineer (K) is the Employer and the Executive Engineer (K-3) is the Engineer.

1.22 General Obligations

At the commencement of the Contract, the Employer will grant possession to the Operator of the 550 MLD capacity treatment works at T.K.Halli, including the mandatory and recommended spares, as taken over by BWSSB from the previous operator which were handed over to him from Cauvery Water Supply Scheme, Stage IV, Phase-II Water Treatment Works, including the mandatory and recommended spares. These spares shall remain in the ownership of the Employer. The Employer shall grant the operator right of access to the Treatment works through BWSSB's premises at TK Halli. At no cost to the Operator, BWSSB will supply raw water from the River Cauvery to the inlet of the Treatment Works. Also at no cost BWSSB will provide the main electricity to the designated cubicle in the 11 KV panel in the pumping station to enable the Operator to operate the Treatment Works. The Employer shall pay the Operator in accordance with Clause 37 and as per the rates quoted by the operator in Schedule-B.

1.23 The Engineer.

1.231 Engineer's Duties and Authority

The Engineer shall carry out the duties specified in the Contract. The Engineer shall have no authority to amend the Contract or to relieve the Operator of any of his duties, obligations and responsibilities under the Contract. Any proposal, inspection, consent, approval or similar act by the Engineer, shall not relieve the Operator of any of is responsibility, including responsibility for his errors, omissions, and discrepancies.

1.232 Engineer's Authority to Delegate

The Engineer may from time to time delegate any of his powers to assistant, and may at any time revoke such delegation. Any such delegation or revocation shall be in writing, specifying the powers, functions and authorities being delegated or revoked, and shall not take

effect until a copy has been delivered to the Employer and the Operator. Any determination, instruction, inspection, examination, testing, consent, approval or similar act by any assistant of the Engineer, in accordance with the delegation, shall have the same effect as though it had been an act of the Engineer. However, any failure to disapprove any procedures, inspections, testing etc., shall not prejudice the right of the Engineer to reject such procedure, inspection, testing etc. If the Operator questions any determination or instruction of an assistant of the Engineer, the Operator may refer the matter to the Engineer, who shall confirm, reverse or vary such determination or instruction.

1.233 Engineer's Instructions

Unless it is legally or physically impossible, the Operator shall comply with instructions given by Engineer in accordance with the contract. In particular, the Operator shall follow the Engineer's instructions on BWSSB's requirements regarding the output of the Treatment Works, the disposal of sludge etc.

1.234 Liaison with the Engineer

The Operator will liase with the Engineer on all issues affecting the operation and maintenance of the Treatment Works and shall submit daily records and monthly reports to him, with copies to the Employer from time to time, the Operator will attend meetings with the Engineer to review the operation and maintenance of the Treatment Works. The Engineer's authorised assistants shall have the right of access to inspect any part of the Treatment Works at any time, including access to all the Operator's records.

1.235 Engineers to Attempt Agreement

When the Engineer is required to determine value, cost etc. he shall consult with the Operator in an endeavour to reach agreement. If agreement is not reached the Employer's shall determine the matter fairly, reasonably and in accordance with the contract whose decision is final.

2. Interpretation

2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Employer will provide instructions clarifying queries about the Conditions of Contract.

2.2 The documents forming the Contract shall be interpreted in the following order of priority:

(1) Agreement

(2) Letter of Acceptance, notice to proceed with the works
(3) Contractor’s Tender
(4) Contract Data
(5) Conditions of Contract
(6) Specifications
(7) Drawings
(8) Bill of quantities and
(9) Any other document listed in the Contract Data as forming part of the Contract.
(10) CWSS, IV Stage, Phase-II Package documents the design, as build drawings, O&M manuals (Including the vendors manuals).

3. Law governing contract

3.1 The law governing the Contract is the Laws of India supplanted by the Karnataka Local Acts.

4. Employer's decisions

4.1 Except where otherwise specifically stated, the Employer will decide contractual matters between the Employer and the Contractor.

5. Delegation

5.1 The Employer may delegate any of his duties and responsibilities to other people after notifying the Contractor and may cancel any delegation after notifying the Contractor.

6. Communications

6.1 Communications between parties which are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

7. Subcontracting

7.1 The operator may engage sub-contractor for the skilled, unskilled and security manpower under the overall responsibility of the operator

8. Other Contractors

8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer.

9. Personnel

9.1 The Contractor shall employ the technical personnel (of number and qualifications) as may be stipulated by GOK from time to time during the execution of the work. The technical staff so employed shall be available at site as may be stipulated by the Employer.

9.2 If the Employer asks the Contractor to remove a person who is a member of the Contractor's staff or his work force stating the reasons, the Contractor shall ensure that the person leaves the Site within Three days and has no further connection with the work in the Contract.

9. 3 **The Operator's Site Organization.**

9.31 **General:**

It is envisaged that the operator will set up an organization on site to

a. Operate the Treatment Works efficiently to achieve the required output and to meet the required standards, and

b. Maintain the elements of the Treatment Works, structures, buildings, plants, and equipments in good working condition at all times to ensure smooth and uninterrupted operations.

To this end, the Operator shall provide one Instrumentation/ Electrical/Mechanical Engineer for the Treatment Plant (O&M Treatment Plant at TK Halli and He should also appoint a suitably qualified and experienced operator (Diploma/Licensed ITI Holder) in charge of the Treatment Works to work in the day (No separate shift basis). A qualified Helper to assist the operation of the Treatment Works and instrumentation portion of the maintenance of the Treatment Works in each shift should be appointed. It is envisaged that at least one of these staff will be present at the Treatment Works at all times by staggering the shifts, weekly day off, holidays etc. Each of these personnel shall be fluent in English and Kannada. Each of these staff will control a team of skilled labour and unskilled labour. Also, the operator shall arrange for suitable cover should one of these staff or skilled labour be unavailable for periods of more than three days by reason of annual or sick leave. The Operator shall plan and arrange for adequate manpower required to operate and maintain the Treatment Works, including the fluctuations in the numbers required for certain labour intensive tasks such as the handling of handling of alum, cleaning of tanks etc. In each shift at least four labourer, two technicians (mechanical and electrical) and one supervisor shall present apart from the above engineers.. The Operator shall keep detailed daily records of labour and submit them regularly to the Engineer at the intervals required by him.

9.32 Training:

The Operator shall organize and implement suitable project specific training programmes so that each of his personnel is aware of and conversant in the tasks required of them and competent to carry them out. As far as practicable, the personnel shall be trained to perform a variety of tasks so that each man is conversant with duties other than those of his designated role. The Operator shall monitor the performance of each of the personnel and adjust or reinforce the training as necessary. Part of the Operator's responsibility is to ensure the health and safety of his personnel. The training shall give priority to informing and making the personnel aware of the need for health and safety, hygiene etc.

9.33 Administration:

The operator shall provide an administration cell at the eight sites, suitably equipped with modern communications and office facilities, to organize and maintain the documentation, records, reports, procurement, arrange supplies etc. The Operator shall provide head office back up to monitor and advice his site staff on the performance of the Treatment Works. The Operator shall arrange for periodic visits by experienced staff to supervise the Operation and Maintenance of the Treatment Works and to discuss with the Engineer the potential for modifications and improvements etc.

9.4 The Operator's Staff and Labour

9.41 Engagement of Staff and Labour

The Operator is entirely responsible for the staffing of the delivering and other works at all locations and for the adequacy of his staff, in terms of capability and numbers, to operate and maintain the Treatment Works in accordance with the requirements of the Contract to the satisfaction of the Engineer. The Operator's monthly rate is deemed to include for all the costs associated with their employment including their payments, social and statutory costs, their welfare housing, transport, overheads and profit etc. Other than such accommodation arranged with BWSSB, the Operator shall not allow any of his employees to maintain any temporary or permanent living quarters within the BWSSB's premises. If, during the course of the Contract, Engineer is of the opinion that the operator is not fulfilling his obligations, with respect to the operation and / or maintenance of the Treatment Works to his satisfaction, he will inform the Operator accordingly in writing. The Operator shall submit his proposals for rectification to the Engineer for his approval. If it is necessary for the Operator to modify his staff and labour arrangements, the operator shall do so immediately at his own expense. The attendance of the Operator's staff and labour shall be

registered every day, and the Engineer's Representative will every day attest the same on that register.

While deploying the O & M Staff by the successful bidder, the list of personnel should be got cleared from the Department and only such personnel should be deployed for O & M. any change in personal also should be got cleared from the Department before deploying such personnel. The deployment of personnel will be reviewed each year.

9.42 Qualifications

The Operators shall employ only persons, who are careful and appropriately qualified skilled and experienced in their respective professions. The Plant Manager/Process Engineer shall be an Engineering graduate with at least fifteen years experience, including ten years relevant experience in Operation and Maintenance of water treatment works. The other engineers shall be engineering graduates with relevant experience in Operation and Maintenance of water treatment plant. The supervisors shall be diploma holders and technicians shall be ITI holders. Out of the above Engineers, one of them should available at all times by staggering the shifts. The qualification and experience shall be as follows:

1. Project Manager/Process Engineer: - Post graduate in Public health engineering / environmental engineering having minimum 15 years overall experience and having specific experienced for 10 years in O & M of a municipal potable water treatment plant having processes viz. Chemical coagulation and flocculation and settling along with a with rapid sand filtration and chlorination disinfection.

2. Electrical Engineer: - Graduate in electrical engineering having minimum 10 years overall experience and having specific experience for 5 years in O & m of a municipal potable water treatment plant having processes viz chemical coagulation and flocculation and settling along with a with rapid sand filtration and chlorination disinfection.

3. Mechanical Engineer: - Graduate in mechanical engineering having minimum 10 years overall experience and having specific experience for 5 years in O & M of a municipal potable water treatment plant having processes viz chemical coagulation and flocculation and settling along with a with rapid sand filtration and chlorination disinfection.

4. Instrumentation Engineer: - Graduate in instrumentation/automation engineering having minimum 10 years overall experience and having specific experience for 5 years in O & M of a municipal potable water treatment plant having processes viz chemical coagulation and flocculation and settling along with a with rapid

sand filtration and chlorination disinfection having exposure in SCADA.

5. Laboratory Chemist / Analyst: - Graduate in chemistry having minimum 10 years overall experience in sampling, testing and analytical/instrumental methods and specific experience for 3 years in complete analysis of water sample preferably worked in municipal potable water treatment plant having processes viz chemical coagulation and flocculation along with rapid sand filtration and chlorination disinfection.

6. Lab-assistant**:** Graduate in B .Sc. chemistry having 3 years of experience in sampling, testing and analytical/instrumental methods who shall be supporting laboratory chemist/analyst

7. Shift Engineers/Supervisor : Diploma in each of the discipline is mechanical, electrical and instrumentation having minimum 5 years overall experience and having specific experience for 3 years in O & M of a municipal potable water treatment plant having processes viz. Chemical coagulation and flocculation along with rapid sand filtration and chlorination disinfection having specific exposure in SCADA.

8. Fitter/Electrician: - ITI certificate with experience minimum 3 years.

The proof for the above qualifications and experience for the various staff to be deployed by the O & M contractor shall be submitted to the Engineer.

The Shift operator shall be a Licensed ITI / diploma Holder, with at least three years relevant experience in the operation of Treatment Works. All staff, workers, labourers shall be fluent in Kannada including reading and writing. Operator should give suitable documents to prove this to Engineer.

The Tenderer shall submit CVs of the proposed key technical personnel's (Engineers & Operators) indicating their qualification/experience etc. in the Technical Schedule itself. Regarding labourers, the operator shall submit a list of labourers who will work in shifts at each site to the Engineer along with labour licence and other relevant statutory documents in respect of labours.

9.43 Conditions of Labour:

The Operator shall pay rates of wages, and observe conditions of labour, more favourable than those established for the industry under hazardous conditions. The operator shall comply with all the relevant and latest labor laws relating to his employees, and shall duly pay and afford to them all their legal rights including PF, ESI etc. The Operator shall require all such employees to obey all applicable laws and regulations concerning safety at work. The labourers shall be given as per prevailing

labor act rules apart from weekly holidays etc., The operator shall register with Labour Department for completing formalities etc., The Operator and his Engineers, operators, supervisors, labourers and staff shall have no right to claim anything with BWSSB. The entire responsibility of the human resource activities and their claims rest with the Operator.

9.44 Operator's Personnel to Remain Unchanged:

After receiving the Engineer's instruction to proceed, and prior to mobilization, the Operator shall update and confirm to the Engineer the organization chart, submitted with his Tender, together with the CVs and qualification certificates of any key personnel who have been changed from those in the Operator's Tender. Such changes, if any, shall be subject to the approval of the Engineer. Except as the Engineer may otherwise agree the Operator's staff and skilled labour shall remain unchanged from those mobilized at the commencement of the Contract. If, during the course of the Contract, any of these staff and skilled labour resigns or becomes incapacitated or is withdrawn, with the permission of the Engineer, or is discharged, the Operator shall nominate a replacement candidate with equivalent qualifications and experience for the approval of the Engineer.

Similarly, the Operator shall replace any of his personnel who is found by the Employer to be unqualified, incompetent or otherwise becomes undesirable. In such circumstances, the Engineer will notify the Operator at the site in writing and the operator shall suspend the person immediately and exclude him from the site and from BWSSB's premises. If required by the Engineer, the Operator shall provide a replacement as soon as possible.

9.45 Mobilisation of staff and Labour:

Before any of the Operator's management personnel and skilled labour commence their duties at the Treatment Works the Operator shall submit for all his personnel, management, staff, skilled and unskilled labour qualification certificate, Medical certificates certifying that they are in good general health and that they are free from salmonella carrier condition or other condition, which makes them unsuitable for employment at a Water Delivering facility, together with passport size photographs affixing their signature.

9.46 Staff and Labour Returns:

The Operator shall submit detailed daily returns showing the staff and the skilled labour and the numbers of the several classes of the unskilled labour employed by the Operator. The returns shall be in such form and submitted at intervals as the Engineer may prescribe.

9.47 Uniforms:

The Operator's personnel shall wear uniforms, distinguishable from BWSSB's uniform but otherwise of the Operator's choice, with ankle black shoes. Each of the Operator's employees shall be provided with an Identity Card (with photograph) signed by the Engineer. The personnel shall carry identity cards at all times while on the BWSSB premises. The operator shall keep his personnel informed of all BWSSB's requirements regarding security etc., at TK Halli shall see that his personnel comply at all times.

10. Employer's and Operator's risks

10.1 The Employer carries the risks which this Contract states are Employer's risks, and the Operator carries the risks which this Contract states are Operator's risks.

11. Employer's risks

11.1 The Operator's risks are all risks other than the Employer's Risks listed below

a) War, hostilities (whether war be declared or not), invasion, act of foreign enemies,
b) Rebellion, revolution, insurrection, or military or usurped power, or civil war,
c) Ionising radiations or contamination by radioactivity from any nuclear fuel, or
from any nuclear waste from the combustion of nuclear fuel, radioactive toxic
explosive, or other hazardous properties of any explosive nuclear assembly or
nuclear component of such assembly.

d) Pressure waves caused by aircraft or other aerial devices travelling at sonic or
supersonic speeds,

e) Riot, commotion or disorder, unless solely restricted to employees of the Operator or of his sub-contractors and arising from the conduct of the Contract.
f) Loss or damage due to the use or occupation by the Employer of any Section or
part of the Treatment works, except as may be provided for in the Contract,

g) Any operation of the forces of nature against which an experienced contractor
could not have reasonably been expected to have taken precautions,

h) The supply of raw water to the inlet of the treatment works unless due to the
operator's default under as per tender.

i) The supply of mains electrically at the 11 kV switchboards in the treatment plant,
in so far that the loss of mains electricity cannot be mitigated by the Operator's use
of the DG Set in accordance with Sub clause 16.26

j) The evacuation of water from the clear water reservoir.
k) Fire.
l) Mechanical Breakdown.
m) Natural calamities – Earthquake & Flood.

11.2 Indemnity

The Operator shall indemnify and hold harmless the Employer, the Engineer, their agents and employees from and against all claims, damages, losses and expenses arising out of or resulting from the Contract, including professional services provided by the Operator. These indemnification obligations shall be limited to claims, damages, losses and expenses which are attributable to bodily injury, sickness, disease or death, or to injury to or destruction of physical property, including the Treatment Works, and including consequential loss of use. Such obligations shall also be limited to the extent that such claims, damages, losses expenses are caused in whole or in part by a breach of duty of care, imposed by law on the Operator or anyone directly or indirectly employed by the Operator.

11.3 Operator's Care of the Treatment Works

The Operator shall take full responsibility for the care of the Treatment Works and of other systems like control rooms, pipelines, valves and other allied systems at all locations from the Commencement Date until the date of issue of the Taking-over Certificate, when responsibility shall pass to the Employer. The Operator shall take

responsibility for the Contract Period, until the Engineer confirms in writing that such outstanding work has been completed.

The Operator shall take all precautions to protect the Water Treatment Plant and its units during Flash Flood Conditions.

If any loss or damage happens to the Treatment Works or to any other system at any locations, arising from any cause listed below, during the period for which the Operator is responsible, the Operator shall rectify such loss or damage, at his cost, so that the Treatment Works conforms to its condition when the Operator took possession at the commencement of the Contract. The Operator shall also be absolutely liable for any loss or damage to the Treatment Works or any systems caused by any operation carried out by the Operator after the date of issue of the Taking-over Certificate.

11.4 Consequences of Employer's Risks

The Operator shall give notice to the Engineer, of any Employer's Risk upon it being foreseen by or becoming known to the Operator. If an Employer's risk results in loss or damage, the Operator shall rectify such loss or damage to the extent required by the Engineer. If the Operator incurs Cost as a result of the Employer's Risk, the Operator shall give further notice to the Engineer. After receipt of such notice, the Engineer shall proceed in accordance with Clause 1.235 to agree or determine the amount of such cost plus 5% margin for overheads, which shall be added to the contract Price and shall notify the Operator accordingly.

12. Operator's risks

12.1 All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks are the responsibility of the Operator.

12.2 The Operator's risks are all risks other than the Employer's risks listed in sub

Clause.

12.3 Limitation of liability

i) Neither party shall be liable to the other for any loss of profit, loss of use,
loss of production, loss of contracts or for any other indirect or consequential damage that may be suffered by the other except:

a. As expressly provided in this Contract, and

b. Those provisions of the contract whereby the Operator is expressly
entitled to receive profit.

ii) The total liability of the operator to the Employer under the Contract shall
not exceed the Contract price as defined in Clause 37.3. Except that this
Sub-Clause shall not limit the liability of the operator:

a. Under any provisions of the Contract which expressly impose a greater
liability,

b. In case of fraud, wilful misconduct or illegal or unlawful acts,

c. In case of acts or omissions of the Operator which are contrary to the most elementary rules of diligence which a conscientious contractor would have followed in similar circumstances.

12.4 Operators Liability

The Operator shall be absolutely liable and solely responsible for any and all kinds of injuries or damages to person and property of any description whatever may be caused by or result from the execution of the works, whether these may have been carried out skill fully and carefully and strictly in conformity with the provisions of the specifications or not.

13. Insurance:

13.1 The Operator shall prior to commencing the works, effect and thereafter maintain insurances, in the joint names of the Employer and the Contractor, (cover from the first working day after the Start Date to the end of Defects Liability Period), in the amounts stated in the Contract Data :

(a) For loss of or damage to the Works, Plants and Materials and the Contractor’s equipment;

(b) for liability of both Parties for loss, damage, death and injury to third parties or their property arising out of the Operator's performance of the Contract including the Operator's liability for damage to the Employer's property other than the Works and

(c) For liability of both Parties and of any Employer's representative for death and injury to the Operator's personnel except to the extent that liability arises from the negligence of the Employer, any Employer's representative or their Employees.

13.2 Policies and certificates for insurance shall be delivered by the Operator to the Employer for his approval before the Start Date. All such insurance shall provide for compensation to be payable to rectify the loss or damage incurred. All payments received from insurers relating to loss or damage shall be held jointly by the Parties and used for the repair of the loss or damage or as compensation for loss or damage that is not to be repaired.

13.3 If the Operator fails to effect or keep in force any of the insurances referred to in the previous sub-clauses or fails to provide satisfactory evidence, policies or receipts, the Employer may without prejudice to any other right or remedy, effect insurance for the cover relevant to such default and pay the premiums due and recover the same as a deduction from any other monies due to the Operator. If no payment is due, the payment of the premiums shall be a debt due.

13.4 Alterations to the terms of an insurance shall not be made without the approval of the Employer.

13.5 Both Parties shall comply with any conditions of the insurance policies.

13.6Insurance for the Treatment Works

The Operator shall insure the treatment works in the joint names of the Employer and the Operator against loss or damage within 14 days from the date of commencement of contract from any cause other the Employer'' Risks listed in Sub Clause 11.1 subparagraphs (a), (b), (c) and (d) as follows. However operator is responsible for getting the reimbursement to Board from insurance company, other related services like professional reports documentation, counselling etc.,

a. The installed process, mechanical, instrumentation, pipings and electrical equipment's etc shall be insured for its full replacement cost (including overheads and profit) including the cost of demolition and removal of debris. Such insurance shall be for a limit of not less **Rs. 40.00 crores.**

b. The civil and building works shall be insured for its full replacement cost (including overheads and profit) including the cost of demolition and removal of debris. Such insurance shall be for a limit of not less **Rs 2.00 crores** per occurrence or up to ten occurrences. The

Operator shall make his own insurance arrangements, at his own cost. The Operator is entirely is responsible for the costs of complying with the requirements of clause 45.2 of handing back the treatment works to the Employer in good working condition, except for fair wear and tear. The Operator shall ensure that this insurance is sufficient to provide adequate cover to enable him to do so and he shall rectify at his own expense any loss or damage to the civil and building works that is not covered by this insurance either by exclusions or by the Operator's failure to provide adequate cover. The operator shall include the cost of this insurance in his monthly lump sum rate under Clause 37.3.

Such insurance shall be in such a manner that the Employer and the Operator are covered from the date by which the evidence is to be submitted under Sub-Clause 13.6(a), until the date of issue of Taking-Back Certificate for the treatment works. The Operator shall extend such insurance to provide until the date of issue of the Defects Liability Certificate, for loss or damage for which the Operator is liable arising from a cause occurring prior to the issue of the Taking-Back Certificate, and for loss or damage occasioned by the Operator, in the course of any other operations (including those under Clause 45.3).

The Operator shall insure at his cost, the Treatment Works at all locations including all Electrical, Mechanical, Instrumentation & PLC Automation items, including valve chambers along the pipeline, in the joint names of the Employer and the Operator within 14 days from the date of commencement of contract. The Insurance shall be done for 'Reinstatement value' (full replacement cost at present value).

The Treatment Works shall be insured for the risks listed in Clause 11.1

The Operator is entirely responsible for the costs of complying with the requirements of Clause 45.2 of handing back the Treatment Works to the Employer in good working condition, except for fair wear and tear.

The Operator is responsible for getting the reimbursement to the Board from the Insurance Company, other related services, professional reports, documentation, counselling etc. and the same will be reimbursed to the operator.

13.7 Insurance against Injury to Persons and Damage to Property

The Operator shall insure against liability to third parties, in the joint names of the Employer and the Operator, for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 13.6) or to any person (except persons insured under Sub-Clause 13.8), which may arise out of the performance of the Contract and occurring before the issue of the Defects Liability Certificate.

Such insurances shall be for Rs.20,00,000=00 per occurrence, number of occurrences unlimited.

13.8 Insurance for Workers

The Operator shall effect and maintain insurance against losses and claims arising from the death or injury of any person employed by the Operator, in such a manner that the Employer and the Engineer are indemnified under the policy of insurance.

13.9 General Requirements for Insurances.

Each insurance policy shall be consistent with the general terms agreed in writing prior to the date when the Operator takes possession of the Treatment Works from the Employer, and such agreement shall take precedence over the provisions of this Clause.

The Operator shall, within thirty days of the Commencement Date, submit to the Employer:

a) Evidence that the insurances described in this Clause have been effected, and
b) Copies of the policies for the insurances described in Sub-Clauses 13.6 and 13.7.

When each premium has been paid, the Operator shall submit copy receipts to the Employer. The Operator shall also, when providing such evidence, policies and receipts to the Employer, notify the Engineer of so doing. The operator shall affect all insurances, for which he is responsible, with insurers and in terms approved by the Employer. Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify such loss or damage. Payments received from insurers shall be used for the rectification of such loss or damage. The Operator (and, if appropriate, the Employer) shall comply with the conditions stipulated in each of the insurance policies. The Operator shall make no material alteration to the terms of any insurance without the prior approval of the Employer. If an insurer makes (or proposed to make) any such alteration, the Operator shall notify the Employer accordingly.

If the Operator fails to effect and keep in force any of the insurances required under the Contract, or fails to provide satisfactory evidence, policies and receipts in accordance with this Sub-Clause, the Employer may, without prejudice to any other right or remedy, effect insurance for the coverage relevant to such default, and pay the premiums due. Such payments shall be recoverable from the operator by the Employer, and may be deducted by the Employer from any monies due, or to become due, to the Operator. Nothing in this Clause limits the obligations, liabilities or responsibilities of the Operator or the Employer, under the terms of the Contract or otherwise.

13.91 Force Majeure

13.911 Definition of Force Majeure

In this Clause, ‘Force Majeure’ means all events beyond the control of the Employer and the Operator, which makes it impossible for a party to perform, but not limited to:

Act of God;

War, hostilities (whether war be declared or not), invasion, act of foreign enemies, mobilization, requisition, or embargo.

Rebellion, revolution, insurrection, or military or usurped power, or civil war

Contamination by radio-activity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosive, or other hazardous properties of any explosive nuclear assembly or nuclear component of such assembly,

Riot, commotion or disorder, unless solely restricted to employees of the Operator or of his sub-contractors.

13.912 Effect of Force Majeure Event

Neither Employer nor the Operator shall be considered in default or in contractual breach to the extent that performance of obligations is prevented by a Force Majeure event, which arises after the date, the Operator takes possession from the Employer.

13.913 Operator’s Responsibility

Upon the occurrence of an event considered by the Operator to constitute Force Majeure and which may affect performance of his obligations, he shall promptly notify the Engineer and shall endeavour to continue to perform his obligations as far as practicable. The Operator shall also notify the Engineer of any proposals, including reasonable alternative means for performance, but shall not effect such proposals without the consent of the Engineer.

13.914 Employer’s Responsibility

Upon the occurrence of an event considered by the Employer to constitute Force Majeure and which may affect performance of his obligations, he shall promptly notify the Operator and the Engineer, and shall endeavour to continue to perform his obligations as far as practicable. The Employer shall also notify the Engineer and the operator of any proposals, with the objectives of completing the Contract and mitigating any increased costs to the Employer and the Operator.

13.915 Payment to Operator

If, in consequence of Force Majeure, the Operator incurs additional cost in complying with Clause 13.913 such cost shall be determined by the Engineer in accordance with the provisions of Sub-Clause 1.235 and shall be added, with a 5% margin for overheads, to the Contract Price.

13.916 Optional Termination, Payment and Release

If a Force Majeure event occurs and its effect continues for a period of 182 days, either the Employer or the Operator may give to the other notice of termination, which shall take effect 28 days after the giving of the notice. If, at the end of the 28-day period, the effect of the Force Majeure continues, the contract shall terminate. If the Contract is to be terminated under this Sub-Clause, the Engineer shall determine the value of the work done and:

a) The amounts payable for any work carried out as calculated in accordance with Clause 37.3;
b) The cost, with a 5% margin for overheads and profit, of fuel and other consumables together with any equipment ordered for the Treatment Works which have been delivered to the Operator, or of which the Operator is liable to accept delivery; such materials and equipment shall become the property of (and be at the risk of) the Employer when paid for by the Employer, and the Operator shall place the same at the Employer's disposal.
c) Any other cost, with a 5% margin for overheads, or liability which in the circumstances are reasonably incurred by the Operator in the expectation of completing the Contract.
d) The reasonable cost, with a 5% margin for overheads, of repatriation of the Operator's staff and labour employed wholly in connection with the Treatment Works at the date of termination; and issue an Interim Certificate in accordance with Clause 49.6.

13.917 Release from Performance under the Law

If under the law of the Contract the Employer and the Operator are released from further performance, the sum payable by the Employer to the Operator shall be the same as would have been payable under Sub-Clause 13.916 as if the Contract had been terminated under that Sub-Clause.

14. Site Investigation Reports:

14.1 The Contractor, in preparing the tender, shall rely on any site investigation reports referred to in the Contract data, supplemented by any information available to the Tenderer.

15. Queries about the Contract Data

15.1 The Employer will clarify queries on the Contract Data.

16. Contractor to Operate & Maintain the Plant

16.1 The Contractor shall operate and maintain the plant in accordance with the Specification and Operation & Maintenance Manual and as specified by the employer.

16.2 Requirements for the Operation of the treatment works

16.21 General

At the commencement of the Contract, the Employer will hand over possession to the operator of the treatment works, including the spares, as taken over by BWSSB under previous Contract. At no cost to the Operator, BWSSB will deliver the raw water from the Cauvery to the inlet to the treatment works and will provide the mains electricity to the designated cubicle in the 11 kV panel in the Water Treatment Plant. The operator shall provide all goods and services (with all kinds of repairs) including management staff, skilled and unskilled labour, the chemicals, tools, replacement parts and all consumables required to ensure the treated water from the treatment works is of the required quantity and required quality standards in compliance with this Contract. The operator will also treat and dispose of the sludge and wastewater in compliance with this contract.

16.22 Output of the treatment works

The Operator is responsible for producing potable water from the raw water supplied by BWSSB utilizing the process and operation units at the treatment works to the satisfaction of the Engineer. The supply of treated water should not be less than 99% of the quantity of raw water supplied which is generally around 550 MLD. Except when BWSSB is unable to supply raw water, the operator shall supply potable water continuously to the clear water reservoir at T.K.Halli 24 hours per day, 365 days per year.

16.23 Treated Water Quality

The Operator shall ensure that the quality of the filtered water, the combined filtrate and clear water existing in the Clear water reservoir

shall comply with following standards over the full ranges of output between to 100% of the rated capacity:

Sample	Compliance requirements	
Combined filtrate	Turbidity<5 NTU for 5% ile samples Al<0.1 mg/L for 5% ile samples PH 6.5 to 8.5 for 100% ile samples Colour<15 for 5% ile samples	<0.5NTU for 95% ile <0.03 mg/l 95% ile
Filtrate from individual Filters		< 5 for 95% ile
Clear water reservoir	Turbidity<5 NTU for 5% ile samples & <1.0 NTU for 95% ile. A1<0.03 mg/L Fecal coliforms 0 / 100 ml Coliform organisms 0/100 ml Free residual chlorine (post)>2.5mg/L Free residual chlorine (pre)>1 mg/L	

The testing of treated water shall be carried out as specified in the IS 10500:2012 manual on water supply and treatment for all parameters. The testing has to be carried out at every stage of unit processes to have adequate quality control. The process of testing has to be carried out at in house laboratories and NABL accredited third party agencies for all the parameters prescribed in the IS 10500:2012 manual on drinking water standards.

16.24 Consumption of Power and Chemicals

The Operator shall arrange his operations to restrict power and chemical consumption to be within the functional guarantees shown below for the treated water output to the Clearwater reservoir, excluding consumption due to sludge processing.

	Usage per ML of Treated Water output		
	Raw water analysis Conditions		
	Minimum	Mean	Maximum
Power usage (for the whole works excluding sludge processing)	11.84 KWh	25KWh	40.63KWh
Alum usage (as A12(SO4)3. 18H2O), Grade - IV	5 kg	8.96 kg	40 kg
Chlorine	2.5 kg	4.5 kg	6 kg
Liquid PAC	0Kg	2Kg	20Kg
Polyelectrolyte	0.01Kg	0.024Kg	0.03Kg
Floculant/coagulant aid	0.05Kg	0.15Kg	0.5Kg

16.25 Sludge

The sludge produced in the water process shall be treated and processed so that the dewatered sludge cake produced by the centrifuges shall be no less 20% dried solids. At least 98% of the solids shall be in the dewatered cake and less than 2% of the solids shall be in the centrate. The waste water shall be clarified to below 10 NTU turbidity prior to return of the supernatant from the sludge thickeners to the works inlet. The operator shall ensure that the sludge received from the DAF clarifiers is properly processed in the sludge thickeners and centrifuges and the supernatant pumped back top inlet channel. The operator shall ensure that all the mechanical moving parts, paddles, scraper arms rotate at the prescribed speeds, in all the respective units. In the sludge thickeners, sludge shall be removed and pumped at regular intervals, maintaining

minimum build up of thickener. The Operator shall run the sludge treatment and handling units from wastewater balancing tank to dewatering building in automatic mode so as to treat and dispose the sludge. The Employer will arrange for suitable disposal sites for the sludge cake produced by the centrifuges and, from time to time, the Engineer will instruct the Operator accordingly. These disposal sites will be within a 5-km radius of treatment works. The operator shall for transport and shall include all haulage costs in his Contract Price.

16.26 Diesel Generator Set

The Operator shall run the DG Set at times when the main power is not available so that the performance of the treatment works is not affected due to power outages. The DG set shall be maintained, including the supplies of diesel oil, so that it is available for operation at all times. The Operator's monthly rate under Clause 37.3 shall include for the provision of oil, spares, lubricants and the annual maintenance contract. However it shall not include the cost of diesel and the payment for diesel will be paid as per actuals incurred by the contractor.

16.27 Management of operation

The operator shall set up his organisation on site to plant and manage the operations of the treatment works to achieve the objectives described in the Contract. Inter alia, the Operator shall:

Plant and manage operations:

- Establish responsibility for the operation of the process units, and systems,
- Arrange for structured training programmes, instructors and trainers, classroom and on-the-job training, continuing education etc.
- Assign staff accordingly,
- Establish and administer the operating organisation,
- Plan and schedule the operation takes.

- Monitor, adjust and optimise the operation of the treatment works,
- Produce and submit to the Engineer monthly reports on the performance of the treatment works, including statistical analyses.

Implement the operating instructions and procedure manuals, as handed over at the commencement of the Contract:

- Update these documents as necessary during the Contract cover all aspects of the operation of the process units, equipment etc.
- Index and cross-reference these documents to each other and to the vendor’s manuals, the number of copies, routines for updating and amending all copies of a given document will need to be carefully controlled.

Management of chemicals and other consumables:

- Prepare procedures for receiving and handling,
- Maintain inventory records,
- Maintain quality records,
- Maintain usage records,
- Optimisation of usage etc.
- Management of power supplies:

Keep and agree daily with the Engineer records of power outages,

- Monitor and keep records of the quality of power,
- Optimise usage,
- Prepare procedures for diesel fuel receiving and monitoring, inventory records, usage records.

Laboratory management:

- Prepare testing procedures,
- Schedule and perform testing, develop testing records,
- Control chemical dosing,
- Monitor the quality of raw and treated water and of the sludge and supernatant.

- Develop testing and quality monitoring records,

Establish and maintain procedures for emergency conditions such as chlorine leaks, fire, etc. The operator shall supply all consumables, other than the process chemicals, HSD and power, at his own cost. The quality of the consumables such as reagents, diesel oil, lubricants etc shall be strictly in accordance with the latest IS codes and specifications.

16.28 Requirements for the Maintenance of the treatment works

16.281 General

Operator shall maintain the treatment works in good working condition with proper and complete preventive maintenance program at all times to ensure that:

- the operation of the treatment works is smooth and efficient,
- The Treatment works is kept clean, tidy and of good appearance to a standard to be expected of water treatment installation.
- The Treatment works are in the same condition, fair wear expected, when it is taken back by the Employer at the end of the Contract as it was when the Operator took possession.

The Operator shall maintain the total instrumentation system, including the PLC, SCADA, mimics, computers, peripherals in good working condition at all times so as to operate the entire plant units in automatic mode. The Operator shall maintain all major and minor civil, miscellaneous, mechanical, electrical, instrumentation, piping works etc. including the repair of any kind, supply of all consumables, spare parts, lubricating oils etc, necessary.

The Operator shall maintain the entire electrical installation at the treatment works, from the connection in the 11 kV switchboards in the pumping station, in accordance with the requirements and regulations

of KPTCL, CEIG etc. in force and as may be amended from time to time. The power factor shall be maintained at not less than 0.90 lag.

The Operator shall regularly replenish the stocks of mandatory and recommended spares, provided by the Employer when the treatment works was handed over to the Operator, so that adequate stocks are available at all times. The Operator shall provide all other replacement parts, spares etc at his own expense. The Operator shall supply and provide at his expense any additional tools, tackles and equipment necessary for operation and maintenance in addition to the tools, tackles and equipment provided by the Employer. The Operator shall replace any tools, tackles and equipment provided by the Employer when they are no longer in good working condition so that the full stock is replenished when the treatment works is taken back by the Employer.

The Operator shall maintain the treatment works in accordance with the O& M manuals, including the vendor’s manuals, as handed over to the Operator on taking possession of the Treatment works. The Operator shall minimise the number and duration of breakdowns as well deterioration through programmes of preventative maintenance, the keeping of adequate stocks of spares, timely corrective repairs and replacements of parts and general good housekeeping. The operator shall set up and maintain adequate workshop and stores facilities to achieve these objectives.

The operator shall modify the issued O & M manuals as required from time so that they are kept up to date with the experience gained during the Contract, both on and off the site. Every six month’s, the Operator shall certify to the Engineer that the O & M manuals are up to date and shall send to the Engineer, for his information. Details of any changes made to the O & M manuals and the maintenance procedures, if any.

Every month, the Operator shall send to the Engineer:

a. a list of plant breakdowns and spares consumed together with the supply of replacements, spares, repairs of items of plant etc., made during the month and
b. a schedule of the maintenance he plans to carry out during the coming month.

The Operator shall make his own quality audit against the O & M manuals and his own maintenance procedures and shall submit to the Engineer details of any changes required to correct any deficiencies that may become apparent. The employer shall have the right to make his own audit.

16.282 Management of Maintenance

The Operator shall set up his organisation on site to plant and manage the maintenance of the Treatment works to achieve the objectives described in the Contract. Inter alia, the operator shall:

a. General:
- Develop maintenance programmes and organisation,
- Prepare maintenance administration policies,

b. Plant and manage maintenance:
- Establish responsibility for the maintenance of the process units, equipment and systems,
- Arrange for structured training programmes, instructors and trainers, classroom and on-the-job training, continuing education etc.,
- Assign staff accordingly,
- Establish and administer the maintenance organisation,
- Plan and schedule the maintenance tasks, both preventative and corrective,
- Implement equipment identification codes as an extension of the design and construction records,

- Implement maintenance reporting which both records maintenance that is to be carried out and maintenance that has been performed,
- Establish a maintenance work package system to administer the performance of maintenance,
- Implement maintenance control procedures, including for work by subcontractors,
- Produce and submit to the Engineer monthly reports on the maintenance of the Treatment works.

c. Implement the maintenance instructions and procedure manuals, including the vendors' manuals, as handed over at the commencement of the Contract:

- Update these documents as necessary during the Contract to cover all aspects of the maintenance of the process units, equipment etc, and for item of equipment, instruction for maintenance and schedules of component parts
- Index and cross-reference these documents to each other and to the vendors' manuals, the number of copies, routines for updating and amending all copies of a given document will need to be carefully controlled.

d. Management of spares:

- Prepare and implement procedures for spare parts procurement,
- Prepare procedures for receiving and handling,
- Maintain inventory records,
- Maintain quality records,
- Maintain usage records,
- Optimise usage etc.

e. Work control including preventive and corrective maintenance:

- Set up annual maintenance contracts with suppliers of equipment as described in Sub Clause 1.126 of ITT to include

preventative maintenance and emergency corrective maintenance programmes so that breakdowns can be kept an absolute minimum in frequency and duration,

- Prepare corrective and preventative maintenance procedures, including annual maintenance contracts as described in sub clause 1.126 of ITT,
- Prepare and implement tool control procedures.

f. Outage planning:

- Critical plan method scheduling for maintenance outages and for taking process units, storage tanks etc. out of service for periodic cleaning,
- Resource planing, including specialists or subcontractors where necessary, special materials procurement and special tool and equipment requirements.

g. SCADA, computer and instrumentation maintenance:

- Set up annual maintenance contracts with suppliers to include preventative maintenance and emergency corrective maintenance programmes so that the entire plant can be kept in automatic operation at all times, expect for breakdowns which shall be kept to an absolute minimum in frequency and duration,
- Produce and submit to the Engineer monthly reports on the performance of the SCADA, computer and instrumentation, including surveillance to promote reliability,
- Maintain adequate stocks of spares,
- Replace computer peripherals as required,
- Update these systems to keep the equipment in top condition.

16.283 Spares

The operator shall take into stock, when he takes possession of the treatment works at the commencement of the Contract, the spares

taken over by BWSSB under previous O & M Contract. These will be issued free of cost to the operator. The Operator shall manage the spares as outlined in Sub Clause 16.282 and shall report monthly to the Engineer on the usage and consumption of the spares as described in Sub clause 16.281. The operator shall plan and arrange for the procurement of spare parts to replace those spares consumed or those spare parts whose shelf life has expired and to replenish the stock kept at the treatment works at no extra cost to the Employer. Before issue of taking over certificate, operator has to handover all the spares issued to him by the Engineer those replenished spare parts, so that the quantity remains intact, as issued during the start of the contract.

16.284 Housekeeping

The operator shall keep the treatment works clean and tidy so that it is good appearance at all time. To this end, inter alia:

- All the buildings and surroundings shall be kept neat, clean and tidy without dust, cobwebs etc.
- The floors of all walkways, stairs, offices, toilets, the control, switchgear and plant rooms, the laboratory, chemical and other areas inside the buildings are to be brushed and washed each day,
- Windows and doors are to be washed at least once a week
- Brass and other metal surface are to be polished at least once a week.,
- The process and storage tanks are to be emptied, cleaned and disinfected with bleaching powder as required for efficiency, in accordance with the O & M manuals, and at least once every six months
- The landscaped areas between and around the buildings shall be properly tended so that the grass, shrubs and trees are kept in a healthy and pleasing condition. The Operator shall

maintain and develop (to entire available area within the fence) the landscaping, the grass, shrubs and trees.

17. The Works to be completed by the Intended Completion Date

17.1 The Operator may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the program submitted by the Contractor, as updated with the approval of the Employer, and complete them by the Intended Completion Date.

18. Approval by the Employer:

18.1 The Operator shall submit Specification and drawings showing the proposed Temporary Works to the Employer, who is to approve them if they comply with the Specifications and Drawings.

18.2 The Operator shall be responsible for the design of Temporary Works

18.3 The Employer’s approval shall not alter the Contractor’s responsibility for design of the Temporary Works.

18.4 The Operator shall obtain approval of third parties to the design of third parties to the design of the temporary Works wherever required.

18.5 All Drawings prepared by the Operator for the execution of the temporary or permanent Works, are subject to prior approval by the Employer before their use.

19. Safety

19.1 The operator shall be responsible for the safety of all activities on the Site.

20. Discoveries

20.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site is the property of the Employer. The Operator is to notify the Employer of such discoveries and carry out the Employer's instructions for dealing with them.

21. Possession of the Site

21.1 The Employer shall give possession of all parts of the Site to the Operator. If possession of a part is not given by the date stated in the Contract Data the Employer is deemed to have delayed the start of the relevant activities and this will be Compensation Event.

22. Access to the Site

22.1 The Operator shall allow the Employer and any person authorized by the Employer access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plant are being operated & maintained.

23. Instructions

23.1 The Operator shall carry out all instructions of the Employer which comply with the applicable laws where the Site is located.

24. Procedure for resolution of Disputes:

24.1 If the Operator is not satisfied with the decision taken by the Employer, the dispute shall be referred by either party to Arbitration within 30 days of the notification of the Employer's decision..

24.2 If neither party refers the dispute to Arbitration within the above 30 days, the Employer's decision will be final and binding. 24.3 The Arbitration shall be conducted in accordance with the arbitration procedure stated in the Special Conditions of Contract.

24.4 Disputes and Arbitration

In case of questions or disputes which shall arise on matters touching construction of any clause herein contained, on the rights, duties and liabilities of the parties hereto, the same shall in cases be referred to interoperation, decision and award of chairman of BWSSB and his decision is final and binding. The work under the contract shall, however, continue during the dispute clearing proceedings and no payment due or payable to the contractor shall be with holded on account of such proceedings.

No provisions of the arbitration and conciliation Act 1996 shall be operatable in this contract.

Reference to dispute clearance shall not relieve the Operator of his obligations to proceed with and continue the Operation and Maintenance of the treatment works with due diligence and in accordance with the Engineer's decision or instruction, nor relieve the Employer of any of his obligations under Contract in accordance with the Contract.

24.5 Law and Procedure

The law, which is to apply to the Contract and under which the Contract is to be construed, is the Law of the Republic of India. All disputes, differences, litigations under the contract beyond the clause 24.4 shall be subjected to court in Bangalore jurisdiction only.

B. Time Control

25. Program

25.1 Within the time stated in the Contract Data the Operator shall submit to the Employer for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works.

25.2 The Employer's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Employer again at any time. A revised Program is to show the effect of Variations and Compensation Events.

26. Extension of the Intended Completion Date

26.1 The Employer shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date.

26.2 The Employer shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Operator asking the Employer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information.

26.3 The operator shall continue the O&M of the plant after the intended completion date until it is intimated in writing or the new operator takes over as per the direction of the Engineer.

27. Delays ordered by the Employer

27.1 The Employer may instruct the Operator to delay the start or progress of any activity within the Works.

28. Management meetings

28.1 The Employer may require the Operator to attend a management meeting. The business of a management meeting shall be to review the progress achieved and the plans for remaining work.

28.2 The responsibility of the parties for actions to be taken is to be decided by the Employer either at the management meeting or after the management meeting and stated in writing to be distributed to all who attended the meeting.

C. Quality Control

29. Identifying defects

29.1 The Employer shall check the Operator's work and notify the Operator of any Defects that are found. Such checking shall not affect the Operator's responsibilities. The Employer may instruct the Operator to search for a Defect and to uncover and test any work that the Employer considers may have a Defect

30. Tests

30.1 If the Employer instructs the Operator to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does/does not, the Operator shall pay for the test and for any samples.

30.2 The Operator shall carryout all the tests for all the parmeters as mentioned in the O&M Manual, IS 10500:2012 Manual & conditions of contracts at everyday at an interval of 1 Hr and at any time whenever necessary. All the parameters as prescribed in the IS 10500:2012 manual shall be tested once in a month from NABL accredited laboratory.

30.3 Test has to be carried out as per the Clause 16.23, 16.24 & 16.25.

31. Correction of defects

31.1 The Employer shall give notice to the Operator of any Defects before the end of the Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

31.2 Every time notice of a Defect is given, the Operator shall correct the notified Defect within the length of time specified by the Employer’s notice.

32. Uncorrected defects

32.1 If the Operator has not corrected a Defect within the time specified in the Employer’s notice, the Employer will assess the cost of having the Defect corrected, and the Operator will pay this amount.

1 D. Cost Control

33. Bill of Quantities (BOQ)

33.1 The BOQ shall contain items for the Comprehensive Operation & Maintenance of 550 MLD Water Treatment Plant at T.K.Halli of Cauvery Water Supply Scheme, Stage-IV, Phase-II for Three Years and any other work to be done by the Operator.

33.2 The BOQ is used to calculate the Contract Price. The Operator is paid for the quantity of the work done at the rate in the BOQ for each item

34. Variations

34.1 The Employer shall have power to order the Operator to do any or all of the following as considered necessary or advisable during the progress of the work by him

(a) Increase or decrease of any item of work included in the Bill of Quantities (BOQ);
(b) Omit any item of work;
(c) Change the character or quality or kind of any item of work;
(d) Change the levels, lines, positions and dimensions of any part of the work;
(e) Execute additional items of work of any kind necessary for the completion of the works; and
(f) Change in any specified sequence, methods or timing of construction of any part of the work.

34.2 The Operator shall be bound to carry out the work in accordance with any instructions in this connection, which may be given to him in writing by the Employer and such alteration shall not vitiate or invalidate the contract.

34.3 Variations shall not be made by the Operator without an order in writing by the Employer, provided that no order in writing shall be required for increase or decrease in the quantity of an item appearing in the BOQ so long as the work executed conforms to the approved drawings.

34.4 The Operator shall promptly request in writing the Employer to confirm verbal orders and the officer issuing oral instructions shall confirm it in writing with in 30days, failing which the work shall be carried out as though there is no variation. In case variation is approved, it shall be accompanied by BOQ, failing which the contractor shall be responsible for deviation, if any. Further, approval of the Board has to be obtained for the variation exceeding 5%.

35. Payments for Variations

35.1 Payment for increase in the quantities of an item in the BOQ up to 25% of that provided in the Bill of Quantities shall be made at the rates quoted by the Contractor.

35.2 For quantities in excess of 125% of the tendered quantity of an item as given in the BOQ, the Contractor shall be paid at the rate entered in or derived from in the Schedule of Rates (applicable for the area of the work and current at the time of award of contract) plus or minus the overall percentage of the original tendered rates over the current Schedule of Rates prevalent at the time of award of contract.

35.3 If there is no rate for the additional, substituted or altered item of the work in the BOQ, efforts would be made to derive the rates from those given in the BOQ or the Schedule of Rates (applicable for the area of the work and current at the time of award of contract) and if found feasible the payment would be made at the derived rate for the item plus or minus the overall percentage of the original tendered rates over the current Schedule of Rates prevalent at the time of award of contract

35.4 If the rates for additional, substituted or altered item of work cannot be determined either as at 35.1 or 35.2 or 35.3 above, the Operator shall be requested to submit his quotation for the items supported by analysis of the rate or rates claimed, within 7 days.

35.5 If the Operator's quotation is determined unreasonable, the Employer may order the Variation and make a change to the Contract Price which shall be based on Employer’s own forecast of the effects of the Variation on the Operator's costs.

35.6 If the Employer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.

35.7 Under no circumstances the Operator shall suspend the work on the plea of non-settlement of rates for items falling under this Clause.

36. Submission of bills for payment

36.1 The Contractor shall submit to the Employer monthly bills of the value of the work completed less the cumulative amount paid previously.

36.2 The Employer shall check the Operator’s bill and determine the value of the work executed which shall comprise of (i) value of the quantities of the items in the BOQ completed and (ii) valuation of Variations and Compensation Events.

36.3 The Employer may exclude any item paid in a previous bill or reduce the proportion of any item previously paid in the light of later information.

37. Payments

37.1 Other recoveries in terms of the contract and taxes, at source, as applicable under the law will be adjusted in the payments. The Employer shall pay the Operator the within 60 days of submission of bill. The Operator shall be liable to pay liquidated damages for shortfall in progress. For Progress beyond the agreed programme, payment is subject to availability of the grants.

37.2 Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

37.3 **The Contract Price:**

The Contract Price shall be the monthly lump sum fixed rates in the Operator's Tender for the Operation and Maintenance of the treatment works times the period of Operation and Maintenance as defined in Clause 2, manpower and rates quoted in schedule-B separately for Three years. The rates for the chemicals shall be quoted separately. The operator shall pay all duties and taxes in consequence of his obligations under the contract. He shall also pay the taxes as per government statutory rules.

All prices shall be quoted in Indian rupees only. The price quoted should include all taxes, duties or any other levies etc but excluding GST

37.31 Conditions for first payment

Operator shall furnish following documents before receiving the first monthly lumpsum payment

i) Insurance documents.

ii) Labour Registration documents including PF, ESI, etc documents.

iii) Details of staff and labour.

iv) Annual Contract Documents

v) Other details as per contract.

vi) Annual maintenance contract document. (Agreement)

vii) Any other documents as per contract clauses 1.23, 9.3, 9.4, 16.28, etc.

viii) Performance security

37.4 Application for interim Payment Certificate:

The operator shall submit a detailed statement in four copies to the Engineer after the end of each month, in a form approved by the Engineer, showing the amounts to which the operator considers himself to be entitled, together with all necessary supporting documents and including the monthly report and other details referred to in the Contract. The statement shall include the amounts considered due as defined in sub clause 15.1.

37.5 Issue of Interim Payment Certificate:

No amount shall be certified or paid until the employer has received the approved performance security in accordance with sub clause 1.123 of ITT. Thereafter, the Engineer shall, within 28 days of receiving the statement and supporting documents, deliver to the employer with a copy to the operator an interim payment certificate showing the amount, which the engineer considers to be due. The engineer certificate will take account of the amounts, which are due to the employer as a rebate for services not supplied by the operator, if any, and as calculated according to the procedures described in sub clause 37.6.

As Interim Payment Certificate shall not withheld on account of defects or disputed items, in which case the Engineer shall deduct the estimated value of replacement or repair, or of disputes, in which case the Certificate shall be issued for the undisputed amount.

The Engineer may in any payment certificate make any corrections or modifications that should properly be made to any previous certificate.

37.6 Operator's Rebate for Services not provided

After receipt of the Operator's monthly report and its supporting documents, the Engineer will assess the performance of the Treatment Works against the requirements of the contract. If he is of the opinion that there were certain non-compliances, he shall give his written opinion to Operator and adjust the amount due to the Operator by deducting the rebate for work not done and/or services not provided as follows:

The amount to be deducted from the monthly lump sum rate shall be at Rs. 25 per Kilo Liter shortfall in the supply of treated

water to the clearwater reservoir, compared to the output instructed by the Engineer in accordance with Sub Clause 16.22, and compared to the equivalent of 99% of the raw water supplied to he treatment works in accordance with Sub Clause 16.22. The Engineer shall determine the shortfall during the month by comparison with the hourly flow records collated by the Operator for the month and submitted to the Engineer in the monthly report, provided such shortfall is due to the Operator's operation and/or maintenance of the treatment works and not due to shock loading caused by sudden fluctuations in the quality of the raw water.

The amount to be deducted from the monthly lump sum rate shall be at Rs 4,000 per hour when the quality of the treated water is outside the limits specified in Clause 16.23, provided such non-compliance is due to the Operator's operation and/ or maintenance of the treatment works and not due to the shock loading caused by sudden fluctuations in the quality of the raw water. The operator shall submit to the Engineer, with the monthly report, hourly records of the treated water parameters together with a statistical analysis to show compliance or otherwise with the required quality parameters in terms of percentile occurrences. The Engineer shall determine the amount to be deducted.

The amount to be deducted from the monthly lumpsum rate shall be at Rs. 25.0 per kWh when the electrical consumption is outside the limits specified in Sub clause 16.24. The Operator shall submit to the Engineer, with the monthly report, records of the electricity consumed together with an analysis to show compliance or otherwise with the functional guarantees. This analysis shall take account of fluctuations of the power supply in the frequency, from the normal 48.5 Hz, and the voltage, from the normal 11KV. The relationships between frequency, voltage

and power shall be as determined during the Tests after Completion, described in Clause 1.1216 of ITT. The Engineer shall determine the amount to deduct.

The amount to be deducted from the monthly lump sum rate due to the absence of the Operator's site manager and the two engineers, one in charge of operations and the other in charge of maintenance, described in Clause 9.3, and of the chemist and qualified technicians, described in Clause 9.4, shall be calculated as follows:

Condition	Rate per day or part day
The Operator's supervisor is not on the site for two or more than one day per week	Rs. 5,000=00
The operator's Plant Manager/Process Engineer and any two engineers are absent from the site on any day	Rs. 8,000=00
The Operator's Plant Manager/Process Engineer is absent from the site for 3 days or more, in a month without an approved replacement	Rs. 6,000=00
Either one of the qualified Engineers is absent from the site for 3 days or more in a month without an approved replacement	Rs. 4000=00
The chemist or qualified technicians are absent from the site for 3 days or more in a month without an approved replacement	Rs. 4000=00
Absence of worker for more than three days in a month	Rs. 1000=00

The amount to be deducted from the monthly lump sum shall be Rs. 20000 per day or part day per unit when any of the water process units or sludge processing units have been taken out of service, on account of the non-availability of the installed plant or equipment for any reason whatever and when, in the opinion of the Engineer only, the removal of such units from service has affected the quantity or quality of the treated water or of the processed sludge. In this sub clause, the term 'water process unit' shall mean any of the pre-chlorination system, the alum

dosing system, one or more DAFs, more than one of the wastewater recovery tank, both of the sludge thickener tanks, the sludge sump., one or more of the centrifuges, the polyelectrolyte dosing system. If several units are out of service at the same time, the amount to be deducted from the monthly lump sum rate shall be applied in respect of each of the units out of service. .

The amount to be deducted from the monthly lump sum rate shall be Rs. 2000 per day per unit for non availability of the either water equipment or sludge processing equipment for more than 2% working hours equipment means any pneumatic valves, pumps, motors, control panels, transformers, HT/LT Electrical panels, actuators, gate, dosing pumps, submersible/ non submersible agitators.

The amount to be deducted from the monthly lump sum rate shall be Rs. 8000 per tonne of dried sludge when the Operator fails to dispose of the sludge as required by the Contract to a place approved by the Engineer as described in Sub Clause 16.25.

The amount to be deducted from monthly lump sum rate shall be Rs. 20,000 per day when the Operator fails to keep the automatic system, the PLCs, the SCADA etc in operation, other than for a planned outage for maintenance that has been arranged with the prior approval of the Engineer.

The amount to be deducted from the monthly lump sum rate shall be Rs 20,000 per day when the Operator fails to make and submit the reports in time.

The amount to be deducted from the monthly lump sum rate shall be Rs 100 per day per person when the workers fail to wear uniform.

Not keeping the good housekeeping, land scarping the amount to be deducted monthly lump sum rates shall be Rs. 5500 per day per item.

The decision of the Engineer is final and binding on the operator on any of the clause.

37.7 Chemicals & Consumables:

37.71 General

The operator is generally responsible for the supply and for maintaining sufficient stocks of the process chemical (alum, chlorine and polyelectrolyte) of the requisite quality to produce the required output of treated water and sludge to the specified standards. However the option of supplying the chemicals by the Employer is kept open. Employer may instruct to the operator stating that the particular chemicals will be supplied from his end, the operator has to accept for use in the plant and stop his supply of the particulars chemicals. At the commencement of the contract, the operator shall inform the Engineer of the names of his suppliers and a copy of his specifications for the chemicals. If, during the course of the Contract, he wishes to change either the supplier or the specification he shall inform the Engineer before doing so.

The operator shall supply all consumables other than the power at his own cost. The quality of the consumables such as reagents, diesel oil, lubricants etc shall be strictly in accordance with the latest IS codes and specifications.

Each consignment of chemicals, consumables shall be certified by the BWSSB Engineer on the invoice, delivery challans before on day to day basis entering the site during the office working hours. Safety precautionary measures should be maintained to avoid any hazards.

No material supplied by the contractor shall be taken out of plant premises without written approval of BWSSB Engineer in charge of work. At the end of the month before releasing payment the net physical balance of the materials shall be verified in the presence BWSSB Engineer & actual consumption during the month be recorded and reported

37.72 Payment for Chemicals

For the purpose of payment for the chemicals, the Employer will pay the operator for the quantity of chemicals supplied at the agreed rates. The quantities and rates shall be established as follows:

a. At the end of the payment period, the operator shall preset to the Engineer all the information including invoices, delivery challans etc required to assess the actual consumption of chemicals against the functional guarantees described in sub Clause 16.24, the records of raw water quality and the production of treated water and sludge. The difference between the Engineer's assessed actual consumption of chemicals, which shall not exceed the consumption given in the functional guarantees, will be the basis for payment in respect of quantities of chemicals.

b. Rates for payment shall be as per the rates quoted by the operator in schedule –B.

The Laboratory

The Operator shall operate and maintain the laboratory and the sampling system to effect with suitable test the analysis of the raw water and the treated water as well as of the sludge, the centrate and the supernatant water at frequent intervals sufficient to optimise and control the dosage of the various chemicals. The dosage rates of the process chemicals, chlorine, alum, and polyelectrolyte shall be adjusted accordingly to ensure that the quality of treated water and sludge conforms to the stipulated standards.

The Operator shall maintain the laboratory and shall supply replacements as necessary, laboratory reagents and other consumables necessary for the efficient operation of the laboratory. The Operator shall provide a qualified graduate chemist, as well as qualified technicians to operate the laboratory round the clock. Records of the sampling, testing, analysis and dose adjustments shall be maintained and submitted to the engineer daily. Operator shall for arrange for an independent laboratory, approved by the engineer, to make all tests per month on all parameters prescribed in the IS 10500:2012 standards. These records shall be consolidated monthly into a report to the engineer with the Operators observations on performance and compliance. The practice of testing the

above listed parameters noted at Clause 16.23 shall be continued on daily basis. Also the testing of treated water shall be carried out as specified in the IS 10500:2012 manual on drinking water standards.

37.73 Claims

37.731 Procedure for Claims

If the Operator intends to claim any additional payment under any Clause of the contract or otherwise, the Operator shall give notice to the Engineer as soon as possible and in any event within 28 days of the start of the event giving rise to the claim. The operator shall keep at the Treatment Works such contemporary records as may be necessary to substantiate any claim. Without admitting the Employer's liability, the Engineer shall, or receipt of such notice, inspect such records and may instruct the Operator to keep further contemporary records. The Operator shall permit the Engineer to inspect all such records, and shall (if instructed) submit copies to the Engineer.

Within 28 days of such notice, or such other time as may be agreed by the Engineer, the operator shall send to the Engineer an account, giving detailed particulars of the amount and basis of the claim. Where the event-giving rise to the claim has a continuing effect, such accounts shall be considered as interim. The Operator shall then, at such intervals, as the Engineer may reasonably require, send further interim accounts are sent to the Engineer, the Operator shall send a final account within 28 days of the end of the effects giving rise to the claim. If the Operator fails to comply with this Sub-Clause, he shall not be entitled to additional payment.

37.732 Payment of Claims

The Operator shall be entitled to have included in any Interim Payment Certificate such amount for any claim, as the Engineer considers due. If the particulars supplied are insufficient to substantiate the whole of the claim, the Operator shall be entitled to payment for such part of the claim as may be substantiated.

38. Compensation events

38.1 The following are Compensation events unless they are caused by the Operator:

(a) The Employer does not give access to a part of the Site by the Site Possession Date stated in the Contract Data.
(b) The Employer orders a delay or does not issue drawings, specifications or instructions required for execution of works on time.
(c) Deleted.
(d) Deleted.
(e) The effect on the Contractor of any of the Employer's Risks.
(f) The Employer unreasonably delays issuing a Certificate of Completion.
(g) Other Compensation Events listed in the Contract Data or mentioned in the Contract.

38.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date is extended. The Employer shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

38.3 As soon as information demonstrating the effect of each Compensation event upon the Operator's forecast cost has been provided by the Contractor, it is to be assessed by the Employer and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Employer shall adjust the Contract Price based on Employer's own forecast. The Employer will assume that the Contractor will react competently and promptly to the event.

38.4 The Operator shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Operator not having given early warning or not having cooperated with the Employer.

39. Tax

39.1 The rates quoted by the Operator shall be deemed to be inclusive of the sales and other taxes that the Operator will have to pay for the performance of this Contract. The Employer will perform such duties in regard to the deduction of such taxes at source as per applicable law and Excluding GST

40. Price Adjustment:

40.1 Contract price shall be adjusted for increase or decrease in rates and prices of materials, fuels and lubricants in accordance with the

following principles and procedures and as per formulae given in the Contract Data.

1 (a) The price Adjustment shall apply for the work done from the date of commencement up to the end of original period of completion or extensions granted by the Employer and shall not apply to work carried out beyond the stipulated period of completion for reasons attributable to the Contractor;

2 (b) Price Adjustment shall be admissible from the date of opening of tenders (original or extended)

3 (c) The price adjustment shall be determined during each quarter from the formulae given in Contract Data.

4 (d) Following expressions and meanings are assigned to the work done during the quarter:

R = Total value of work done during the quarter. It would include the amount of secured advance for materials paid for (if any) during the quarter, less the amount of the secured advance recovered during the quarter. It will exclude value for works executed under variations for which Price Adjustments {if any) will be worked out separately based on the terms mutually agreed. It will also exclude the value of work done during the quarter which was programmed to be done prior to this quarter as per the work schedule in the agreement.

40.2 To the extent that full compensation for any rise or fall in costs to the contractor is not covered by the provisions of this or other Clauses in the Contract, the unit rates included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs.

41. Liquidated damages

41.1 The Operator shall pay liquidated damages to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date (for the whole of the works or the milestone as stated in the Contract Data). The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payments due to the Operator. Payment of liquidated damages does not affect the Operator's liabilities.

41.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Employer shall correct any overpayment of liquidated damages by the Operator by adjusting the next payment of bill.

42. Advance Payments: -Deleted-

43. Securities:

43.1 The Security deposit (including additional security for unbalanced tenders) shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and type of instrument acceptable to the Employer. The Security deposit shall be valid until a date 30 days from the date of expiry of Defects Liability Period and the additional security for unbalanced tenders shall be valid until a date 30 days from the date of issue of the certificate of completion.

44. Cost of Repairs:

44.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

45. Completion

45.1 The Operator shall request the Employer to issue a Certificate of Completion of the Works and the Employer will do so upon deciding that the Work is completed.

45.2 Taking back certificate and defects liability security

On completion of the O&M contract the Operator shall hand over to the Employer the treatment works in good working condition, after the Engineer has issued the Taking-Back certificate 56 days prior to the due date of handing back to the Employer, the operator shall submit to the Engineer to the satisfaction of the Employer.

The Employer shall issue a Taking back certificate to the Operator on his request within 30 days after the date of taking back by the Employer subjected to the condition that the following documents and obligations are met by the Operator within 30 days of taking back.

Four sets of Operating and Maintenance manuals, together with the vendor’s manuals, fully updated to take account of the experience

gained during the Contract. These documents shall be fully indexed and cross-referenced as described in Clause 16.28.

Report summarizing the history of the Operation and Maintenance of the Treatment Works during the Contract, together with details of the optimised methodology for operating and maintaining the Treatment Works as developed by the Operator during the Contract.

The inventory of spares and tools etc., held in stock on the Treatment Works, showing that he has replenished the spares and tools etc., consumed from the stock of mandatory and recommended spares and tools etc., handed over by the Engineer.

d. The proposals, outline of the training modules and programmes, for the training of the Employer's operatives.

The Operator shall correct these documents to incorporate any comments the Engineer may have and any additional information he may require 30 days prior to the due date of handling back to the Employer, the Engineer and the Operator shall make a joint inspection of all the civil structures, buildings, delivers, Motors, plant equipments etc., at the Treatment Works to assess the conditions of these items and to agree a list of remedial work and replacements. The Operator shall carry out such remedial work and provide, install and set to work such replacements at his expense. The Operator shall replace all the mandatory and recommended spares, as well as the tools etc, used but not replaced by him during the Contract, to restore the inventory of spares and tools etc., handed over to him by the Employer.

The Operator may apply for the Engineer to issue a Taking – Back certificate not earlier than 14 days prior to the due date and when the operator is of the opinion that the Treatment Works has been restored to its original condition, except for minor outstanding items, which do not affect the use of the Treatment Works. The Engineer shall, within 28 days after the receipt of the operator's application:

Issue the Taking – Back certificate with a copy to the Employer stating the date on which the Treatment Works were complete and ready

for taking back, except for minor outstanding items which do not affect its use, or

Reject the application giving his reasons and specifying the work to be done by the Operator to enable the Treatment Works to be taken back by the Employer.

The Operator shall continue to operate and maintain the Treatment Works until the Engineer has issued the Taking – Back Certificate.

45.3 Defects Liability:

45.31 Completion of Outstanding Work and Remedying Defects:

A defects liability period of six months shall commence upon the issue of the Engineer Taking Back Certificate. During the defects liability period, the Operator shall:

Provide to BWSSB the advisory services and follow up training required.

Complete any outstanding work notified to the Operator by the Engineer Taking Back certificate issued under Clause 45.2.

Make good any defects; noticed during this period and notified to the Operator by in the opinion of the Engineer, such defect is due to the Operator's failure to maintain the Treatment Works in accordance with the Contract.

45.32 Cost of Remedying Defects:

The Operator shall remedy such outstanding works or defects, as described in Sub Clause 45.31, as soon as practicable at his expense.

45.33 Extension of the Defects Liability Period:

The defects liability period shall be extended by the period during which any part of the Treatment Works could not be used by reason of a defect or damage, for which the Operator was liable under Sub Clause 45.31.

45.34 Failure to Remedy Defects:

If the operator fails to remedy any defect or damage within a reasonable time, the Engineer may fix a date on or by which to remedy

the defect or damage and give the Operator reasonable notice of such date. If the Operator fails to do so, the Employer may carry out such work himself at the Operator's risk and cost, such cost being determined by the Engineer.

45.35 Defects Liability Certificate:

Within 28 days of the expiry of the defects liability period, the Engineer shall issue a Defects Liability Certificate stating the date by which the Operator completed all his obligations under the Contract, including the remedying of all defects, to the satisfaction of the Engineer. Only the Defects Liability Certificate shall be deemed to constitute the end of the Operator's obligations to operate and maintain the Treatment Works. After the Defects Liability Certificate has been issued, the operator and the employer shall remain liable for the fulfilment of any obligations, which remained unfulfilled at that time. For the purposes of determining the nature and extent of any such obligations, the Contract shall be deemed to remain in force.

45.36 Payment

The Employer shall pay the amount certified in each Interim Payment Certificate within 28 days from the date on which the Engineer received the Operator's statement and supporting documents. The Employer shall pay the amount certified in the Final Payment Certificate within 56 days from the date of issue of the Certificate.

45.37 Payment of the Balance of the Defects Liability Security.

Upon the expiry of the contract period, the Engineer shall certify that the defects liability security, in accordance with Clause 45.2, is to be returned by the Employer as payment to the Operator. Except that, if at such time any works shall remain to be executed under Clause 45.34, the Engineer shall entitled to withhold certification, until the completion of such work, of so much of the balance of the defect liability security as shall represent the cost of the work remaining to be executed.

45.38 Statement of Completion

Not later than 14 days after the issue of the Taking-Back Certificate for the Treatment Works, the Operator shall submit to the Engineer, six copies of a statement of completion with supporting documents showing in detail, in a form approved by the Engineer.

a) Any further sums which the Operator considers to be due, and

b) An estimate of amounts the Operator considers will become due to him under the Contract, the estimated amount shall be shown separately.

c) The final value of all work done in accordance with the Contract up to the date stated in such Taking-Back Certificate.

46. Taking over

46.1 The Employer shall take over the Site and the Works within Three days of issuing a certificate of Completion.

47. Final account

47.1 The Contractor shall supply to the Employer a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Employer shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 90 days of receiving the Contractor's account if it is correct and complete. If it is not, the Employer shall issue within 90 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Employer shall decide on the amount payable to the Contractor and make payment within 60 days of receiving the Contractor’s revised account.

47.72 Application for Final Payment Certificate

Not later than 56 days after issue of the Defects Liability Certificate, the Operator shall submit to the Engineer three copies of a draft final statement with supporting documents showing in detail, in a form approved by the Engineer, with in 14 days after the issue of Defects Liability Certificate.

a) The value of all work done in accordance with the Contract, and

b) Any further sums which the Operator considers to be due to him under the contract or otherwise.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Operator shall submit such further information as the Engineer may reasonably require and shall make such changes in the draft as may be agreed between them. The Operator shall then submit to the Engineer the final statement as agreed.

If, following discussions between the Engineer and the Operator and any changes to the draft final statement which may be agreed between them, it becomes evident that a dispute exists, the Engineer shall deliver to the Employer (with a copy to the Operator) an Interim Payment Certificate for those parts of the final statement that are not in dispute. The dispute may then be resolved under Clause 24.4, in which case the Operator shall then prepare and submit to the Employer (with a copy to the Engineer) a Final Statement in accordance with the outcome of the dispute.

47.73 Discharge

When submitting the Final Statement, the Operator shall submit a written discharge, which confirms that the total of the Final Statement represents full and final settlement of all the monies, due to the Operator under the Contract. Such discharge shall state that it shall become effective only after payment due under the Final Payment Certificate has been made and the performance security referred to in Clause 1.123 of ITT has been returned to the operator.

47.74 Issue of the Final Payment Certificate

The Engineer shall issue to the Employer, with a copy to the Operator, the Final Payment Certificate within 28 days after receiving the Final Statement and written discharge in accordance with Sub-Clauses 47.72 and 47.73, stating:

a) The amount which is finally due, and

b) After giving credit to the Employer for all the amounts previously paid by the Employer and for all sums to which the Employer is

entitled, the balance, if any, due from the Employer to the Operator or from the Operator to the Employer as the case may be.

If the Operator has not applied for a Final Payment Certificate in accordance with Sub-Clause 47.72 and 47.73, the Engineer shall request the Operator to do so. If the Operator fails to make such an application within a period of 28 days, the Engineer shall issue the Final Payment Certificate for such amount as he considered to be due.

47.75 Cessation of Employer's Liability

The Employer shall not be liable to the Operator for any matter or thing arising out of (or in connection with) the Contract, unless the Operator shall have included a claim for it is his Final Statement and (except for matters or things arising after the issue of the Taking-Back Certificate) in the statement at completion described in Sub-Clause 47.72.

47.76 Changes in Legislation

The Contract price adjustment, taking into account of any increase or decrease in cost resulting from changes in legislation of India, made after the base date. Such legislation means any law, order, and regulation or by law having the force of law, including currency restriction, which affects the Operator in performance of his obligations.

If the operator suffers (or will suffer) delay and / or incurs (or will incur) additional costs from such changes in legislation made after the base date, the operator shall give notice to the engineer. After receipt of such notice, engineer shall proceed in accordance with sub clause 1.235 to agree or determine the amount of such cost which shall be added to the contract price and shall notice the operator accordingly

48. As built drawings and /or Operating and Maintenance Manuals

48.1 The Contractor has to submit the updated operation and maintenance manuals, the Contractor shall supply them by the dates stated in the Contract Data.

48.2 If the Contractor does not supply the updated Operation & Maintenance Manual by the dates stated in the Contract Data, or they do not receive the Employer's approval, the Employer shall withhold the amount stated in the Contract Data from payments due to the Contractor.

49. Termination

49.1 The Employer may terminate the Contract if the other party causes a fundamental breach of the Contract.

49.11 Default of the Employer Termination

If the Employer:

a) Fails to pay the Operator the amount due under any circumstances fails to explain why the Operator is not entitled to such amount, within 42 days of the expiry of the time stated in Clause 37 within which such payment should have been made (except for any deductions that the Employer is entitled to make under the Contract).

b) Consistently fails to meet the Employer's obligations under the Contract, or

c) Assigns the Contract without the Operator's consent, then the Operator may terminate his employment under the Contract. He shall give notice to the Employer and to the Engineer, and such notice shall take effect 14 days after the giving of the notice.

49.2 Fundamental breaches of Contract include, but shall not be limited to the following:

(a) The Operator stops work for 45 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Employer;

(b) Deleted

(c) The Operator becomes bankrupt or goes into liquidation other than for a reconstruction or amalgamation;

(d) Deleted

(e) The Employer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Operator fails to correct it within a reasonable period of time determined by the Employer;

(f) The Operator does not maintain a security which is required;

(g) The Operator has delayed the completion of works by the number of days for which the maximum amount of liquidated damages can be paid as defined in the Contract data; and

(h) If the Operator, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in the executing the Contract.

For the purpose of this paragraph : “corrupt practice” means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution. “Fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Tenderers (prior to or after Tender submission) designed to establish Tender prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition.”

49.3 When either party to the Contract gives notice of a breach of contract to the Employer for a cause other than those listed under Sub Clause 49.2 above, the Employer shall decide whether the breach is fundamental or not.

49.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

49.5 If the Contract is terminated the Operator shall stop work immediately, make the Site safe and secure and leave the Site as soon as reasonably possible.

49.6 Default of the Operator

49.61 Notice to Correct

If the Operator fails to carry out any of his obligations in accordance with the Contract, the Engineer may give notice to the Operator requiring him to make good such failure and remedy the same within a specified reasonable time.

49.62 If the Operator:

a) Fails to comply with such notice within 7 days after having received it,

b) Abandons or repudiates the Contract,

c) Without reasonable excuse fails

i) To commence or to proceed in accordance with the Contract.

ii) To demonstrate sufficient capability in operating and in maintaining the Treatment Works.

d) Becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under any applicable law) has a similar effect to any one of these acts or events.

e) Assigns the contract or subcontracts the Operation and the Maintenance of the Treatment Works.

f) Persistently defaults in the performance of his obligations as evidenced by accumulated repayments by the Operator for services not provided as described by Sub-Clause 37.6.

Then the Employer may, after having given 14 days notice to the Operator, terminate the Operator's employment under the Contract and expel him from the Treatment Works. The Operator shall then deliver all the records, manuals, and procedure documents etc., made by him to the Engineer. The Operator shall not be released from any of his obligations or liabilities under the Contract. The rights and authorities conferred on the Employer and the Engineer by the Contract shall not be affected.

The Employer may make such termination operate and maintain the Treatment Works himself and/or by any other contractor. The Employer or other contractor may use the records, manuals, procedure documents etc. made by the Operator, together with spares, consumables, equipment, tools etc purchased by the Operator during the Contract, as he or they think proper.

49.62 Valuation at Date of Termination

The Engineer shall, as soon as possible after termination, determine and advise the Operator of all sums then due to the Operator at the date of termination. This shall include the value of the spares, consumables, equipment, tools, etc., purchased by the Operator during the contract, at

the date of termination after giving credit to the Employer for the amounts deemed by the Engineer to have been previously paid already by the Employer in respect of these items.

50. Payment upon Termination

50.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Employer shall prepare bill for the value of the work done less advance payments received up to the date of the bill, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.

50.2 If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Employer shall prepare bill for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract, and less taxes due to be deducted at source as per applicable law and make payment accordingly.

50.3 After termination, the Employer shall not be liable to make any further payments to the Operator until all the costs incurred by the Employer in replenishing the stocks of spares and tools etc. The costs of remedying defects and the completion of outstanding work, in accordance with Clause 45.3, have been established. The Employer shall be entitled to recover from the Operator the extra costs, if any, of operating and maintaining the Treatment Works for the remaining Contract Period after allowing for any sums due to the Operator under Sub-Clause 49.62. If there are no such extra costs, the Employer shall pay any balance to the Operator.

50.4 Cessation of Work

After such termination the Operator shall:

Cease all further work, except for such work as may be necessary and instructed by the Engineer for the purpose of making safe or protecting the Treatment Works and any work required to leave the Treatment Works in a clean and safe condition,

Hand over the records, manuals, and procedure documents etc. made by the Operator, together with spares, chemicals, equipment, tools etc., Purchased by the Operator during the Contract.

Remove all his staff and labour from the Treatment Works.

Any such termination shall be without prejudice in any other right of the Operator under the Contract.

50.5 After termination, the Employer shall return the performance security, EMD and Security deposit, and shall pay the Operator the amount calculated and certified by the Engineer as due to the Operator and certified in accordance with Clause 37.5.

The amounts payable for any work carried out as calculated in accordance with Clause 37.

The cost of chemicals, fuel and other consumables together with any equipment ordered for the Treatment Works which have been delivered to the Operator, or of which the Operator is liable to accept delivery, such materials and equipment shall become the property of the Employer when paid for by the Employer, and the Operator shall place the same at the Employer's disposal.

Any other cost or liability, which in the circumstances is reasonably incurred by the Operator in the expectation of completing the Contract.

The reasonable of repatriation of the Operator's staff and labour employed wholly in connection with the treatment works at the date of termination.

51. Property

51.1 All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Employer, if the Contract is terminated because of a Contractor's default.

52. Release from performance

52.1 If the Contract is frustrated by any event entirely outside the control of either the Employer or the Contractor the Employer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made.

F. Special Conditions of Contract

1. Labour:

The Operator shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.

The Operator shall, if required by the Employer, deliver to the Employer a return in detail, in such form and at such intervals as the Employer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Operator on the Site and such other information as the Employer may require.

2. Compliance with labour regulations:

During continuance of the contract, the Operator and his sub contractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. The Operator shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Operator, Employer shall have the right to deduct any money due to the Operator including his amount of security deposit. The Employer shall also have right to recover from the Operator any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

The employees of the Operator and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

3. Protection of Environment:

The Operator shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation. During continuance of the contract, the

contractor and his sub-contractors shall abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

4. Arbitration (Clause 24)

4.1 Deleted as per Order No. LAW-LAC/198/2024 Dt:16.11.2024..

5. Operator to Co-ordinate his Work with Other Contractors

5.1 The Operator has to co-ordinate with the other concerned Operator as already specified in Conditions of Contract for all such works as per the directions of Engineer in charge at no extra cost.

6. Other terms and conditions

1. Rates are inclusive of all taxes and duties.
2. Entry tax should be paid by the concerned contractor.
3. All taxes and duties which are applicable should be paid by the contractor.
4. If any tax due, the same will be paid with interest and penalty by the contractor.
5. The contractor has to collect the deducted tax details in prescribed form in time.
6. 'C' forms will not be issued by BWSSB for purchase of materials by the contractors.
7. E-sugam number will not be issued by BWSSB for purchase of materials by the contractors.
8. If any materials purchased by the contractor with rebate, the same should be remitted to BWSSB, if fails to remit the same, the amount will be deducted from their bill.
9. All the taxes should be paid by the contractor only and Board is not responsible.
10. Jursidiction of Courts /Arbitration: Deleted as per Order No. LAW-LAC/198/2024 Dt:16.11.2024.
11. The sitting of Arbitration shall be held at Bangalore only and no where else.
12. Dispute of any kind arising out of the Contract shall be resolved within the jurisdiction of Bangalore City only and the parties agree and clearly understand that the Courts / Tribunals situated at Bangalore Metropolitan City have exclusive jursidiction for the redressal of the disputes arising out of the Contract and at no other place.
13. The parties further agree and understand that the place of issue of bank guarantee other than Bangalore will have no jurisdiction to resolve dispute of any kind relating to enforcement of the bank guarantees submitted by the contractor at Bangalore for the execution of the contract at Bangalore.

14. The contractor shall comply with all legal requirements in the matter of employment of work men and provide all safety gadgets to the workmen while working in the hazardous place or conditions during the execution of the contract.
15. Contractor shall be fully responsible in the event of death of employee/workmen during the execution of the work and liable to pay adequate compensation to the dependants of employee/workmen as per law.
16. On his/their failure, if the Board is made to pay compensation the same shall be recovered by the Board from the contractor out of the amount due to the contractor or by appropriate legal action.
17. If death of any employee occurs during execution of work due to negligence of contractor, the contract will be liable for termination.
18. In the event of such termination, the employer may consider blacklisting of firm after due notice.
19. In case of any death or accident the contract will be cancelled after following due process.
20. The Board will be entitled to claim exemplary damages from the contractor in case of death of any work man/employees of the contractor in any of the BWSSB works as it damages the reputation of the Board.
21. The contractor should take necessary precautionary and safety measures to contain the viruses like Covid-19 pandemic etc at their own cost
22. Board-BWSSB orders/circulars issued from time to time shall be abide by the contractor.
23. Chlorine being the hazardous gas, necessary safety precautions has to be taken by the operatorduring the operation of the plant round the clock

7. Safety: The Operator shall be absolutely liable and solely responsible for the safety of personnel working in the water treatment plant. The operator shall be suitable prepared with proactive measures. The operator shall provide necessary personal protective equipment to the workers relevant to their work. The operator shall provide safety shoes, protective head gear, safety harness, life jacket, SCABA equipments to work in confined spaces and in handling of hazardous chemicals, five extinguishers of the latest make to avoid any sort of accidents. The operator shall conduct regular safety trainings to his working staff and make them well equipped with rules of safety. The operator shall submit a compiled report of the safety to the engineer in writing without fail.

Annexure:

LIST OF ORGANIZATIONS WHO ARE CONSIDERED AS APPOINTING AUTHORITY FOR APPOINTMENT OF ARBITRATORS [1]

1

Deleted as per Order No. LAW-LAC/198/2024 Dt:16.11.2024.

1

SECTION 6

CONTRACT DATA

CONTRACT DATA

Items marked "N/A" do not apply in this Contract.

The following documents are also part of the Contract: Clause Reference

- The Schedule of Operating and Maintenance Manuals [48]
- The Methodology and Program of Construction [25]
- Site Investigation Reports [14]
- The Schedule of Key and Critical Equipment to be deployed on the work as per agreed program of construction. [25]

The Employer is : **Bangalore Water Supply & Sewerage Board**
Name: *Represented by Chief Engineer (Cauvery Headworks)* [1.1]

Address: **Bangalore Water Supply & Sewerage Board**
8th floor, Cauvery Bhavan
K.G.Road, Bangalore -560009

Name of authorized Representative: **Executive Engineer(Cauvery Headworks)-1,**
BWSSB, T.K Halli

The name and identification number of the Contract is :	**Work of Comprehensive Operation & Maintenance (O & M) of CWSS Stage-IV, Phase-II, 550 MLD Water Treatment Plant (WTP) at T.K. Halli for 5 years (Call-3)**

The Works in brief consist of

a. O & M of Water Treatment Plant to IS 10500:2012 standards including minor and major repairs to plant and machinery.
b. Supply of spares and other consumables for O & M of the plant.
c. Maintenance of gardens and other incidental items for running of the plant.
d. Maintenance of Laboratory for analysing various parameters.

e. Providing security for the plant and machinery of the water treatment plant.

The start date shall be the date of issue of notice to proceed with the work. [1.1]

The Intended Completion Date for the whole of the Works is ***60 Months*** with the following milestones – Not Applicable
[17, 26]
Milestone dates: Not Applicable
[41]

The Site Possession Date is: 15 days [21]
The Site is located in T.K.Halli area and is defined in drawings. [1.1]

The Defects Liability Period is **365**days [31]

Insurance requirements are as under: [13]

Type of Cover		Minimum Cover for Insurance
(i)	Works and of Plant and materials	The sum stated in the Agreement plus 20%
(ii)	Loss or damage to equipment	Full replacement cost
(iii)	Loss or damage to property of Third Party	Full replacement cost
(iv)	Personal injury or death insurance (a) for Third Party	Rs. 20.00 Lakhs
	(b) for Contractor's employees or labour	In accordance with the statutory requirements applicable to Karnataka

Price Adjustment Formula [40]

R= Value of work as defined in Clause 40.1 of Conditions of Contract.

Adjustment for Labour component

(i) Price adjustment for increase or decrease in the cost due to labour shall be paid in accordance with the following formula:

$V_L = 0.85 \times P_l/100 \times R \times (L_i - L_o)/L_o$ Where,

V_L = increase or decrease in the cost of work during the quarter under consideration due to changes in rates for local labour.

L_o = the average consumer **price index for industrial workers** for Bangalore centre for the quarter preceding the date of opening of Bids as published by Labour Bureau, Ministry of Labour, Government of India.

L_i = The average **consumer price index for industrial workers** for Bangalore centre for the quarter under consideration as published by Labour Bureau, Ministry of Labour, Government of India.

P_l = Percentage of labour component of the work.

Adjustment for **Chemical Component:**

(ii) Price adjustment for increase or decrease in the cost of Mineral Oil procured by the contractor shall be paid in accordance with the following formula:

$Vc = 0.85 \times (P_c/100) \times R \times (C_i - C_o)/C_o$, Where

Vc = Increase or decrease in the cost of **Chemical Component** during the month under consideration due to changes in the rates for plant and machinery spares.

C_o = The all India average wholesale price index for **Manufacture of Chemicals and Chemical Products** for the month preceding the date of opening of tenders, as published by the Office of the Economic Advisor, Ministry of Commerce and Industry, Government of India, New Delhi.

C_i = The all India average wholesale price index for **Manufacture of Chemicals and Chemical Products** for the month under consideration as published by the Office of the Economic Advisor, Ministry of Commerce and Industry, Government of India, New Delhi.

P_c = Percentage of Chemical Component in the RA Bill.

Adjustment of POL (fuel and lubricant) component

(iii) Price adjustment for increase or decrease in cost POL (fuel and lubricant) shall be paid in accordance with the following formula:

$V_f = 0.85 \times P_f/100 \times R \times (F_i - F_o)/F_o$

V_f = Increase or decrease in the cost of work during the quarter under consideration due to changes in rates for fuel and lubricants.

F_o = The average official retail price of High Speed Diesel (HSD) at the IOC/HPCL/BPL or other consumer pump at near T k

halli, Mandya district on the day thirty days prior to the date of opening of Bids.

F_i = The average official retail price of HSD at the existing consumer pumps of IOC/HPCL/BPL or other consumer pump at near T K Halli, Mandya district for the 15th day of the middle calendar month of the quarter under consideration.

P_f = Percentage of fuel and lubricants component of the work.

Note: **For the application of this clause, the price of High Speed Diesel oil has been chosen to represent fuel and lubricants group.**

Adjustment for Other Materials:

(iv) Price adjustment for increase or decrease in the cost of all other commodities procured by the contractor shall be paid in accordance with the following formula:

$Vo = 0.85 \times (Po/100) \times R \times (O_i - O_o)/O_o$, Where

Vo = Increase or decrease in the cost of all commodities during the month under consideration due to changes in the rates for commodities.

O_o = The all India average wholesale price index for All Commodities during the month preceding the date of opening of tenders, as published by the Office of the Economic Advisor, Ministry of Commerce and Industry, Government of India, New Delhi

O_i = The all India average wholesale price index for All Commodities for the month under consideration as published by the Office of the Economic Advisor, Ministry of Commerce and Industry, Government of India, New Delhi.

P_O = Percentage of All other Components of the work.

The following percentages will govern the price adjustment for the entire contract:

1.	Labour – P_l	**24%**
2.	Chemical-Pc	**67%**
3.	Fuel and Lubricant- P_f	**5%**
4.	Others-P_o	**4%**
	Total	**100%**

SECTION 7

TECHNICAL SPECIFICATIONS

Details of Water Treatment Plant at T.K.Halli

The plant is located at Thorekadanahalli which is 85 KM from Bangalore towards Malavalli via Kanakpura. This plant was built under CWSS 4th stage Phase-II scheme with JICA funding. The raw water to be treated will be abstracted from the Cauvery River at Shiva annecut, and transferred to T.K.Halli via the forbes sagar. Generally raw water has a low turbidity, but during July to October the turbidity rises from less than 5 to 100 NTU. The water is slightly alkaline and has low to moderate alkalinity and hardness. The water has a very low true colour and has no problems associated with the taste and odour. The purpose of the treatment plant is to produce potable water i.e., water of quality within the standards set by the BIS standards IS 10500:2012. The plant is producing around 550 MLD of treated water. The treatment plant is different from the existing units at T.K.Halli in terms of the process and also Operation and maintenance. The plant is being operated through SCADA, PLC and fully under automation mode with least manual interference. The plant is provided with captive power. The quality of raw water to be treated is shown in the table given below. The treated quality is of high quality with turbidity less than 0.50 NTU and MPN is zero per 100 ml.

The raw water will enter the treatment plant premises through the cascade aerator for general oxidation. From the cascade aerator, the water flow in the raw water channel for pre chlorination and for alum dosing. The channel has a parshall flume for flow measurement and there is provision for reading the turbidity and also the residual chlorine in raw water. From the raw water channel, the flow enters the flash mixer for intimate mixing and for coagulation. The flash mixers are with a low detention time for water but with high energy for mixing. The Flash mixers are divided in to two streams each are having four mixers.

The flow enters the treatment plant is proposed with Dissolved Air Floatation

Clarifiers - AquaDAF

The clarification of the coagulated water shall be performed in an Integrated

Hydraulic Flocculation-Dissolved Air Flotation (DAF) type clarification unit

AquaDAF & well proven in water clarification application.

In dissolved air flotation, the effects of gravity settling are offset by the buoyant forces of small air bubbles. These air bubbles are introduced to the flocculated water, where they get attached to floc particles and then float to the surface.

The design of the AquaDAF" unit is such that the separated flocs/sludge and the clarified water moves in the opposite direction, i.e. sludge moves towards the surface to float, and the clarified water moves towards the floor of the DAF unit, so that there is a separation of the solids and water to produce consistently good quality clarified water and minimize the solids loading on the downstream filters.

The main advantages of the proposed AquaDAF Clarifier are:

Ideal for clarification of low to moderate turbidity raw water- as in the present

case.

Due to very fine and light particulate and colloidal matter, including possibility of algal blooms in the upstream storage reservoirs, clarification by flotation is more efficient than conventional clarification by gravity settling (with or without lamella). Most efficient in the removal of algae/planktons.

Compactness due to high clarification rates (smaller surface of the flotation cell in comparison with conventional flotators)

Easy operation and maintenance, mechanical equipment limited to the pressurization system.

Instant START/ STOP - the Process independent of flocculated sludge presence in the clarifier. No mechanical scrappers for sludge removal or underwater moving part. Can be operated solely as a flow-through In-line Hydraulic Flocculation Unit when the plant is operated in Direct Filtration mode (during non-monsoon / low turbidity period)

The AquaDAF units shall be arranged in such a way that they can be operated either

separately or as a whole.

At the inlet of each AquaDAF battery, the water is equally distributed to the unit by

mean of weirs. Each AquaDAF unit includes:

A hydraulic flocculation zone, especially designed with vertical baffles walls.

made with approx. 25 mm thick precast ferro-cement plates, creating 5 plugflow

cells in series, allowing the floc growth for effective clarification. A solution of

polyelectrolyte, as floccualant/coagulant aid, shall be dosed at the inlet of this

chamber

A flotation zone, with special patented perforated floor, made with 20 mm thick

PVC plates, hydraulically distributes the water over the surface as it moves

downwards towards the exit and avoid turbulances. This is one of the main

reason for high clarifcation velocities possible in AquaDAF.

Micron bubble production comprising of a high pressure pump recycling the

clarified water to the DAF unit through a Pressurization Vessel - vertical-cylindrical

in shape, made with carbon steel and epoxy coated, where Air is dissolved in the

recycled water under high pressure (5 to 6 bar). Air is applied from air compressor

that is controlled by the Pressurization Vessel water level. The recycle water

stream is then continuously passed through a distribution system consisting a set

of special depressurization nozzles located on a pipe header at the entrance of the

Flotation Zone. When the recycle flow pressure is suddenly decreased from its

operating pressure of 5 - 6 bar to atmospheric pressure, the saturated air within

the recycled stream is released in the form of micro bubbles. These micro bubbles

get attached or entrapped into the flocs, causing these flocs to rise and float to the

surface. The clarified water moves downwards, and passes through the perforated

floor and shall leave the unit over an Pneumatically Operated Adjustable Weir

into the common clarified water channel.

Floating Sludge removal- the floating sludge is allowed to accumulate for a

Period Of time thereby reaching higher concentration of solids in the float to

Minimize water loss with sludge extraction. The floating sludge is intermittently

Discharged hydraulically by gravity over the sludge weir by raising the water level

In the flotation zone by moving up the automatic weir on the Clarified water outlet.

A network of automatic water spray nozzles on the surface of the flotation zones is

Simultaneously activated to detaches the floating sludge layer from the walls of

the flotation zone and also provides a surface sweep pushing the sludge towards

the sludge overflow channel and to the common sludge outlet for all the

AquaDAF.

The filters are of Aquazur-V-Filters suitable for high water depth. These filters are constant rate constant head filters and are capable of handling 25 MLD each. Filters have false floor to support the filters media. These filters are different from the existing filters in item of sand depth, effective size of sand, high water depth and simultaneously air and water washing. The filtration rate will be very high and the backwashing frequency is less. After the filtration, the water flows to the clear water tank, after final disinfection (post chlorination). Apart from the raw water

treatment, the sludge consistency will be increased in the thickness and later pumped through thickened sludge sump to centrifuges to form the cakes. This plant has programmable logical controllers and SCADA system which is the first of its kind in Karnataka state. As far as the operation of this treatment plant is concerned, it can be operated by wire from a control room. The detailed description of each unit is enclosed in the accompanying statements.

Raw Water Quality

Parameter	Units of measurement	Design value
Turbidity	NTU	100 max <20-95% of the time
PH	pH units	7.0 min – 9.0 max
Alkalinity	mg/l as $CaCO^3$	30 min – 200 max
Total hardness	mg/l as $CaC\ O^3$.	30 min – 160 max
Total dissolved solids	mg/l	70 min – 350 max
Electrical conductivity	µmhos/cm	100 min – 500 max
Calcium	mg/l	5 min – 40 max
Iron	mg/l	0.3 min – 1.0 max
Magnesium	mg/l	3 min – 28 max
Total coliform	$^{MPN/100}$ ml	2000 max
Temperature	^{0} C	19 min -36 max, 26 mean
Colour	Pt/Co scale	<10 (80% ile), 50 max
Total suspended solids	Mg/l	<60-95% of time, 400 max

DESCRIPTION OF THE TREATMENT PLANT

Sl No	Unit	Brief description
1	Inlet valve chamber	To control the raw water flow entering the Treatment plant butterfly valve

	Raw water inlet control Valve Make Fouress Size 2600 mm	with electric actuator, which is controlled through the SCADA/PLC. This can be operated in manual as well as in Auto mode.
2	Cascade aerator Size 25.24m dia	Aerate the raw water, oxidation iron along with degassing of CO_2. Aeration is performed by a cascade with a total fall of 1.5 m in steps. Raw Water is received from the bottom of aerator at the centre of it and aerated water is collected at the outer launder.
3	Parshall Flume Throat width 3.658m	Measuring the raw water flow. The parshall flume is designed to measure the design flow + 50% overload flow to the treatment works. Flow measurement is through ultrasonic type flow sensor with local and remote indication. In this position through online analysers turbidity and chlorination in raw water are measured.
4	Pre-chlorination 40 kg/Hr supplier capital control	Protect DAF and filters from biological growth. Chlorine solution with chlorine at concentration up 1.5 mg/l is done at the approach channel of the Parshall flume after aerator. Chlorine dosing is through chlorinators, which are vacuum operated and has automatic change over facility.
5	Flash mixer Make: Remi motor Capacity : 11 KW turibine type speed 100 rpm	Mixing of Alum solution with raw Water for coagulation Non submersible agitator, with SS shaft and turbine are provided for mixing. The retention time is 60 sec the suspended solids and colloidal particles cannot be separated easily and naturally from water,and coagulation is nesseary to distabilise the colloidal particales by the addition coagulant.The mixing and dissolution of the coagulant within the raw water is the key factor to increase the probability of partiles to meet and then to agglomerate together and consequently to ensure an efficient coagulation process
6	Chemical building	It has provision for stocking alum blocks. It has 6 nos of solution tanks and 2 nos of dosing tanks.
7	DAF Size 15m x14.77 x 3.9 (LxWxH) Qty 10 Pressure vessels 15 No : High pressure pumps	The clarification of the coagulated water shall be performed in an Integrated Hydraulic Flocculation-Dissolved Air Flotation (DAF) type clarification unit AquaDAF & well proven in water clarification application.

	Capacity : 55 KW	In dissolved air flotation, the effects of gravity settling are offset by the buoyant forces of small air bubbles.These air bubbles are introduced to the flocculated water, where they get attached to floc particles and then float to the surface. The design of the AquaDAF" unit is such that the separated flocs/sludge and the clarified water moves in the opposite direction, i.e. sludge moves towards the surface to float, and the clarified water moves towards the floor of the DAF unit, so that there is a separation of the solids and water to produce consistently good quality clarified water, sludge extraction is controlled by PLC/SCADA.
8	Aquazur V filters Blowers- 7062 Cum/Hr -3 Nos. Capacity : 180 KW Total Filter : 24 Nos	Filters are designed to remove the suspended as well as colloidal matter present in the clarified water, Aquazur V filter are high rate gravity operated, homogenous grain size sand filters washed with air and water at the same time. Back washing of the filter is automatically carried out based on pre-set clogging level in the filter. The flow rate is kept constant by partialization box located at the outlet of the each filter, this generates an auxiliary head loss when the filter is clear and this head loss is eliminated. When the filter is clogged constant flow, constant flow rate is achieved with the help of partialization box and Siphon. Operation of the filtration and back washing is controlled through PLC/SCADA.
9	Backwash filling sump/post chlorination	To store the filtered water and using the same for back wash pumps and service water. Filtered water is collected in this sump. Backwash water pumps, Booster pumps for chlorination draw water from this sump. Chlorine solution at a concentration of 3 ppm max is added through diffuse at the beginning of the sump for post chlorination.
10	Air compressors/MCC rooms	Instrument air supply to the pneumatic Pressure vessel valves- Three nos. air compressors of 60 Cfm capacity with head less air drier are provided to supply the compressed air to the Pressure vessels of the

		Dissolved air floatation
11	Chlorination building with 8 nos of chlorinators. Make capital control	There is a provision to store tonners and feeding for pre and post is separate each with 100% standby including vacuum chlorinators.
12	Wastewater balancing tank 20m dia	Collecting the sludge for homogenizing the sludge. Sludge extracted from the DAF & Filter back wash is collected in this tank, This tank is provided with Two sub mixer to keep the contents in suspension and 3 Nos submersible pumps to feed the thickeners.
13	Sludge Thickeners Qty 2 No., 19.5m dia each	To increase the sludge solids content the sludge collected in the WWBT is pumped in to the thickeners after dosing the polyelectrolytes. The sludge thickening is by gravity. The thickened sludge will have a consistency of 2.5 to 3%. This thickened sludge is drawn off from the thickener through 3 Nos screw pumps and sent to sump. Operation of these pumps is controlled by a sludge blanket monitor installed through PLC/SCADA
	Supernatant Sump 4m dia	To collect the supernatant from the thickeners / supernatant from the both the thickeners is collected and it is pumped back to the inlet of the plant. Tank is provided with 2 Nos submersible pumps 1 working 1 standby. Operation of the pumps is controlled by conductivity type level sensor through SCADA/PLC.
15	Thickened sludge sump	Collecting the thickened sludge from the thickener before feed into the centrifuge. Under flow from the thickener is collected in this tank, tank is provided with a sub mixer to keep the sludge in suspension. It is provided with three screw pumps (2 working 1 standby) to feed sludge to the centrifuge type decanter. Operation of the pumps is controlled by the ultrasonic type level sensor through PLC/SCADA.
16	Centrifuge - 3 Nos. 18.5 cum/Hr Make Penwalt	To increase the dry solids content in the sludge for the case of handling and disposal. The centrifuge is solid bowl type decanter having cylindrical bowl and scroll mounted in baring on the frame. Arrangements for online addition of polyelectrolites is made for even mixing of sludge for better results. Necessary polymer solution preparation and dosing arrangements are available in the same building. The sludge cake is collected in trolly and disposed off from the centrate. Centrifuge operation is controlled by the level sensor in the thickened sludge sump through PLC/SCADA.
17	HV system (From Electrical sub	

	Station) 11 KV, 3 Phase, 50 hz, 3 wire connection.	
18	LV system (From HV system) 415 V, 3 phase, 50 Hz, 4 wire connections	
19	Control voltage system (via UPS system) 240V, I phase for instrumentation	

1. Technical Specifications:

i) Electrical and Mechanical works:

The Operator may carry out all the Electrical and Mechanical repair works required for the purpose of uninterrupted delivering of treated water.

Delivering Machinery and Electrical works – General

a) All the materials used shall conform to the relevant I. S. S. wherever applicable. The make and other details of the materials, which are to be used, should be furnished along with the tender. Only approved make has to be used in the case of replacement of materials.

b) Continuous earth connection has to be ensured.

c) The wiring and cabling work should be done as per I E rules.

d) Any damages or breakages, chipping etc., caused during execution of the work shall be rectified by the Operator at his cost to the satisfaction of the Owner's Representative – in – charge.

e) The Operator has to test each and every point after the completion of the repair work to the entire satisfaction of the Owner's Representative – in – charge.

f) The Operator is responsible for the safe custody of all the materials and equipments under this contract till handing over to Board.

g) All necessary civil works required, Operator at his cost should do the erection/ repair of all equipments and accessories under this contract.

h) Test certificates for machinery and equipments should be produced along with supply.

i) The Operator should maintain one set of Tools for the maintenance of the machinery and equipments supplied by them under this contract.

ii) Mandatory duties of the Operator

1. The Operator is responsible for the procurement and for testing and maintenance of supplies of all goods and services necessary to ensure compliance with the Operator's obligation under this contract.
2. Operator should provide manpower required for the Operation and Maintenance of the Water delivering stations. The Treatment Plant

means the entire plant consisting of various units required/ constructed for the purpose of treating of Raw water. It is the responsibility of the Operator to provide necessary supervisory staff and security staff to prevent entry of unauthorized persons.

3. The Treatment Plant has to be operated round the clock throughout the year without any break. The plant has to be operated according to the availability of incoming raw water and has to be increased or decreased at any point of time as directed by Owner's Representative.
4. Minor and major repairs to equipments involved in the contract have to be carried out by the Operator during the O & M period of 3 years. Any repairs to the pipe lines inside & outside the plant premises has to be attended by the Operator during O & M period.
5. On completion of the maintenance period, the Treatment Plant has to be handed over to the Board in good running condition. At the time of taking over by the Board all the equipments and accessories in the Treatment Plant will be inspected and if any defects are noticed, the same will have to be rectified to the original running condition only after which the unit will be taken over.
6. The Operator should ensure that back up teams would be available to operate the plant and equipments continuously.
7. The Operator has to operate and maintain the plant as recommended in the manual with proper logs and records of the work carried out.
8. The Operator has to properly maintain all the valves.
9. The Operator has to operate and maintain Capacitor and allied switchgear to maintain power factor not less than 0.90 or as prescribed by ESCOM. Penalty if any levied by ESCOM has to be borne by the Operator.
10. The Operator has to keep and maintain all units of the treatment plant and its surroundings neat, clean and tidy.
11. The Operator has to maintain the garden developed in and around the plant premises and also has to develop the garden further wherever it is possible.

12. Inspection registers and other registers should be maintained and to be made available to the inspecting officer of the Board.
13. The Operator without any lapse, including those conditions amended by those departments periodically, shall follow mandatory regulations prescribed by the Government.
14. The Operator should enclose the list of staff to be employed with qualification certificate; experience certificate and their passport size photograph affixing their signature.
15. The Operator should provide uniform, identification badges to all the staff and they should wear during working hours.
16. The Operator should provide tools and tackles for the operation and maintenance.
17. Any equipment, tools and plant s supplied by the Board should be kept in good working condition and these should not be taken out of the premises without the written permission of the Owner's Representative.
18. The Operator shall provide a Notice board detailing precautions to be taken by operation personnel in work conformity with Industries and labour regulations.
19. The materials should be properly stocked for easy verification and easily accessible for receiving and storing the fresh stock whenever they are supplied at site.
20. Printing of registers, log sheets and stationery required for the maintenance of the records has to be arranged by the Operator at his cost.
21. The Operator has to maintain basic cost records for all the direct and indirect expenditure and overheads on regular basis as prescribed by Owner's Representative.
22. It is the responsibility of the Operator to liaison with ESCOM for attending fuse – off calls and other related complaints. Also the relative cost charged by ESCOM has to be borne by the Operator.
23. Minor and Major Repairs:

The word Minor repair means all Electrical and Mechanical repairs, replacement of spares such as bearings, electrical spares carried out in the plant for the continuous operation of the plant round the clock without break down for not more than 1 Hour of any equipment.

The word Major repair means all repair works carried out to Mechanical and Electrical equipments.

2. Maintenance of machineries (Preventive maintenance Schedule):

Operator should adopt a preventive maintenance schedule for avoiding breakdowns. These preventive maintenance methods include but not limited to the following:

DAILY

a) Operation and Maintenance

1. Cleaning of the Treatment Plant area and maintenance of Garden and land scaped area
2. Analysis of operating parameter
3. Analysis of operating incidents and rapid correction to ensure uninterrupted operations. Study of possible improvements to adopt to the project context and avoid recurrence of these problems
4. Read out records
5. Read out of elapsed time meters of rotating machinery
6. Consumption of various consumables
7. Monitoring of levels in various units and other specific tasks.
8. Monitoring of garbage (quantities produced, disposal)
9. Lockout and restoration of equipment under maintenance
10. Monitoring, follow-up and adjustment of automated control devices.
11. Monitoring of temperature levels (bearings, delivers etc.,)
12. Inspection of the number of starts of delivers and other equipments
13. Check for the leakages in the pipeline, delivers and water retaining structures
14. Recording in the log book about the details of the plant

b) Mechanical equipments

1. Check for abnormal noise
2. Check motor/ engine temperatures
3. Check operating pressures
4. Check for abnormal vibration

c) Electrical apparatus and Instrumentation

1) Check control system alarms
2) Check operation of instruments

WEEKLY

a) Operation and Maintenance

1. Monitoring of automatic switches
2. Manual testing of start-up and operation of “ON” and “OFF” equipment (delivers, valves etc.,)

b) Lubrication

1. Checking of levels and top-up oil
2. Manual greasing

c) Mechanical equipments

1. Check the functioning of valves, gates
2. Check the functioning of moving parts of all equipments

d) Electrical apparatus and Instrumentation

1. Check batteries (electrolyte, levels and charge)
2. Check electrical installation of buildings (light bulbs, outdoor lightings, power outlets etc.,)
3. Maintain automatic systems and recorders
4. Check and clean level reading systems and transmitters
5. Check and clean sensors and detectors
6. Calibrate the equipment’s wherever required
7. Clean MIMIC board equipment
8. Water the electrical earth pits
9. De-weed the transformer yard

MONTHLY

a) Mechanical equipments

1. Tightening of belts and repack stuffing boxes
2. Checking alignment of couplings, pulleys, shaft sets, shear pins and keys, torque limiters etc.,
3. Service and replace wear parts (bearings, belts, impellers etc.,)
4. Remove and service screens and accessories
5. Test and if necessary remove or service valves and gates and their control devices
6. Check water/ air tightness of equipment
7. Dust off mechanical equipments

b) Electrical apparatus and Instrumentation

1. Check cabinet switches and lamps
2. Check alarm and emergency shutdown systems
3. Check insulation and sealing of motor connections
4. Check submerged electrical parts (level switches, detectors etc.,)
5. Dust off electrical equipments

QUARTERLY

Mechanical equipments

1. Check for vibrations with vibration damping
2. Calibrate the motor speed

HALF YEARLY

a) Mechanical equipments

1. Adjust play, deliver impeller couplings etc.,
2. Service and replace wear parts of delivers, compressors, blowers etc.,

b)**Electrical apparatus and Instrumentation**

1. Check alarm and emergency shutdown systems
2. Check wiring and crimping of lugs
3. Check insulation and sealing of motor connections
4. Check electrical gear, motors, control cabinets and distribution boards boards
5. Check submerged electric deliver units
6. Check valves displayed

YEARLY

a) Mechanical equipments

1. Test and service Air compressor sets
2. Technical inspection of pressurized tanks by an approved body
3. Dust off ventilation outlets and ducts

b) Electrical apparatus and Instrumentation

1. Check cabinet switches and lamps
2. Clean inside electrical cabinets with dry compressed air
3. Complete servicing of power supply sub station
4. Check electrical installations
5. Calibrate the instruments

Installations may be got checked by an approved agency

3. Additional conditions

3.1 The supply of chemicals and other materials to be effected by the O & M contractor shall be done only during shift hours when BWSSB engineers will be available and supplies shall be allowed to be brought in only after inspection of the chemicals and duly authenticating by the BWSSB engineer on duty and taken into stores of the department in the site.

3.2 No materials supplied by contractor which is subjected to quality tests and accepted & paid for shall be allowed to be taken out of plant premises without written approval of BWSSB engineer incharge of work. At the end of the month before realising payment, the net physical balance of materials shall be verified in the presence of BWSSB engineer and actual consumption during the month is recorded and reported to Engineer / Employer.

3.3 Minimum staff to be deployed by the contractor is as follows,

a. Project Manager/Process Engineer - 1 No.
b. Electrical / Automation Engineer-1 No.

c. Mechanical / Operation Engineer - 1 No.

d. Instrumentation Engineer - 1 No.

e. Shift engineer/supervisor- – 4 No.

f. Lab Technician - 1 No.

g. Lab Assistant/Chemist- 1 No.

h. Computer Operator/Data Entry Operator - 1 No.

The above staffs are expected to work in general shift during office hours. Out of the above listed engineers, one of them should be available at all times by staggering the shifts in addition the following staff to be deployed in each of the three shifts per day.

a. Electrician - 4 No.s

b. Fitter - 4 No.s

c. Helper – 12 No.s

d. Security staff – 9 No.s

e. Gardener -9 No.s

The operator is entirely responsible for the staff of the treatment works and adequacy of his staff and in terms of capability and numbers to operate and maintain the treatment plant in accordance with requirement of the contract to the satisfaction of BWSSB engineers.

3.4 Frequency of testing water samples is as follows,

a. Bacteriological quality of raw water and treated water to be tested on daily basis.

b. General systematic chemical examination at twice year.

c. Testing of raw water and treated water for examination of toxic substances once in three months and more frequently when sub tolerance level of toxic substances are present in the source of supply.

3.5. Deployment of staff to be employed by the contractor and the actual staff deployed by the Operator will be assessed every month while releasing bill payment to the Operator duly considering salary for staff deployed only.

3.6. Treated effluent parameters shall be got tested every day on hourly basis and whether the quality of the treated effluent meets the potable water standards prescribed by the BWSSB as per IS 10500:2012 guide lines has to be got checked on daily basis for every hour and a monthly return shall be submitted by the contractor before releasing payment for the particular month.

3.7. On the days of non-compliance of the potable water quality to the prescribed standards recovery will be proposed in the monthly bill as stipulated in the tender.

3.8. Suitable monthly return to be submitted by the Operator shall be devised to bring out in writing that each of the services have been actually rendered before making payment.

3.9. The documentary proof for taking insurance for civil mechanical and electrical items and workmen compensation insurance shall be submitted by the Operator for suitable amount to safe guard the interest of BWSSB against any claims due to accidents, injury to work men and loss of property.

In general for each and every service to be rendered by the Operator under the O & M Operator's scope of works an assessment of actual extent of service rendered by the contractor under every item of work shall be made by the AEE/EE BWSSB by obtaining a monthly work done assessment report covering all items of work from the Operator and verifying the correctness of the same by the BWSSB engineer.

3.10. All important electro mechanical equipments including all pump sets, aeration system, air blowers, surface aerators, laboratory testing equipments, glass ware etc, shall be listed and handed over to the Contractor in good working condition and every fortnight an assessment return shall be obtained from the Contractor listing all equipments in good working order and list of equipments if any under break down showing the date of break down and action taken to rectify and recommissioning the equipment, and the likely date of

recommissioning the equipment. All preventive maintenance actions carried out on each equipment shall also be mentioned in this fortnightly report.

3.11. A planned preventive maintenance schedule to be got prepared by the contractor taking in to account the guide lines given in the IS 10500:2012 Manual on Water Supply and Treatment and for other equipments which are not covered in the IS 10500:2012 manual reference to be made to the manufacturer's/supplier's recommendation and carry out all the preventive maintenance on all equipments including all electrical engineering systems, Transformers, switch gears etc and maintain the details of work done in computerised files and submit monthly returns to the BWSSB engineer along with monthly bills.

3.12. Security guards in three shifts having experience and training (ex service men) have to be posted subjected to antecedents verification by police to safe guard the whole Water Treatment Plant campus and plant and machinery. The security guard posted shall also be supervised by security inspectors in all three shifts. Any theft/loss of property has to be informed to the police and also to the BWSSB engineer within the same day of occurrence.

3.13. Protective equipments/Gas hoods/ Breathing equipments / First Aid equipments: The contractor shall also maintain necessary workmen protective equipments for handling chlorine gas leaks, eye wash fountain, fire extinguishers and other first aid facilities and equipments to prevent accidents and to provide immediate aid to affected work men. Any occurrence of accident shall be reported to the concerned authorities of labour welfare department and also to the BWSSB engineer on the same day.

3.14. The 550 MLD water treatment plant comprising several electro mechanical equipments and civil works of capital cost of Rs. 191 crores (approximately) will be handed over to be O & M Operator for Operation and Maintenance for a period of 3 years who is expected

to maintain the plant with due diligence and care. If the O & M Operator does not take proper operation and maintenance care the electromechanical equipments and overall plant may gradually deteriorate. It is therefore necessary to periodically inspect, test and evaluate all the electromechanical equipments and civil works to ensure the equipments and the plant as a whole is maintained properly. For this purpose once in a year an expert committee comprising one electrical, mechanical and public health/environmental engineer will be assigned the function of inspection, testing and evaluation of each and every major equipment and all buildings and structures and furnish a report to ensure that no unchecked deterioration of the equipments/civil works will occur due to lack of proper O & M practices being maintained by the contractor. All important electromechanical equipment shall be subjected to detailed inspection and testing of performance by the expert committee and necessary improvements will be recommended for implementation by the O & M Operator.

SECTION 8

DRAWINGS

- Nil -

SECTION 9

BILL OF QUANTITIES

Enclosed in a Separate Booklet

Note:

(1) Item for which no rate or price has been entered in will not be paid for by the Employer when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities (refer: ITB Clause 11.2 and CC Clause 37.2).

(2) Unit rates and prices shall be quoted by the Tenderer in Indian Rupees.

(3) Where there is a discrepancy between the rate in figures and words, the lower of the two will govern. [ITT Clause 24.1(a)]

(4) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by quantity, the unit rate quoted shall govern [ITT Clause 24.1 (b)]

SECTION 10
FORMAT OF BANK GUARANTEE FOR SECURITY DEPOSIT

To: _____ [name of Employer]
_____ [address of Employer]
WHEREAS _____ [name and address of Contractor] (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. _____ dated _____ to execute _____ [name of Contract and brief description of Works] (hereinafter called "the Contract");
AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;
AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;
NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of Rs._____ [amount of guarantee] _Rupees_____ _____[in words], and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of _____ [amount of guarantee][64] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.
We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.
We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 30 days from the date of expiry of the Defects Liability Period.
Signature and seal of the guarantor _____
Name of Bank _____
Address _____
Date _____

An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract

An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract

XXXXXXXXXXXXXXXXXXXXXXXX END XXXXXXXXXXXXXXXXXXXXXXXX